

Strategic Information Management

A DoD/Industry R&D Conference

10-11 July 1996

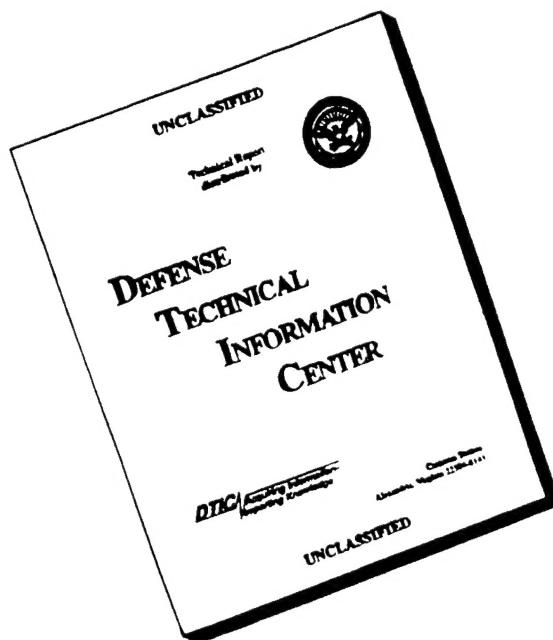
Conference Briefings

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STRATEGIC INFORMATION MANAGEMENT
A DoD/Industry R&D Conference Agenda

WEDNESDAY - JULY 10, 1996

<u>TIME</u>	<u>ACTIVITY</u>	<u>SPEAKER</u>
0800 - 1000	Registration	
0845 - 0900	Opening Remarks ✓	General Henry Viccellio, Jr., ✓ Commander, Air Force Materiel Command
0900 - 0930	DDR&E Perspective ✓	Dr. Lance Davis, ✓ Deputy Director, Defense Research and Engineering
0930 - 1000	DTIC Perspective	Mr. Kurt Molholm, Administrator, Defense Technical Information Center
1000 - 1030	Break	
1030 - 1100	Air Force Perspective ✓	Mr. Timothy Dues, ✓ Chief, Plans and Programs, AFMC/ST
1100 - 1130	Industry Perspective ✓	Mr. Frank Lyon, ✓ Chairman, Aerospace & Defense Industry's Multi-Association Task Group on Independent Research & Development
1130 - 1200	Round Table Questions & Answers	
1200 - 1330	Lunch	
1330 - 1430	Air Force Science & Technology ✓ Secure World Wide Web Demo & 1996 Industry Survey Results	Major Louis Scacca, Air Force IR&D Manager & Ms. Susan Danahy, Air Force S&T Web Master
1430 - 1515	Army Presentation ✓	Mr. Bryan Johnson, Army IR&D Manager
1515 - 1545	Break	
1545 - 1630	Navy Presentation ✓	Ms. Cathy Drew, Navy IR&D & Tech Transfer Manager
1630- 1715	DTIC Presentation ✓	Mr. Jim Erwin, Director, DTIC IR&D

STRATEGIC INFORMATION MANAGEMENT
A DoD/Industry R&D Conference Agenda

THURSDAY- JULY 11, 1996

<u>TIME</u>	<u>ACTIVITY</u>	<u>SPEAKER</u>
0800 - 0900	Registration	
0900 - 0930	Army Perspective ✓	Ms. Cynthia Tootle, Chief, Army Technology Transfer
0930 - 1000	Navy Perspective ✓	Mr. David Rossi, Director, Industrial Programs Dept Office Naval Research
1000 - 1030	Break	
1030 - 1100	Keynote Speaker	Mr. Clyde V. Prestowitz, Jr., Founder & President, Economic Strategy Institute
1100 - 1130	Round Table Questions & Answers	
1130 - 1300	Lunch	
1300 - 1320	Preparing Error Free IR&D ✓ Project Reports	Mr. Alan MacArthur, Electronic Data Manager, The Boeing Company
1320 - 1350	Air Force S&T Planning Process ✓	Mr. Timothy Dues, Chief, Plans and Programs, AFMC/ST
1350 - 1410	Small Business Innovative Research	Ms. Jill Dickman, Air Force SBIR Program Executive
1410 - 1430	Air Force Effort to Match ✓ Industry IR&D Projects Against Future Needs	Major Louis Scacca, Air Force IR&D Manager
1430 - 1500	Break	
1500 - 1520	IR&D CD-ROM ✓ Report Generator	Major Jack Donnelly, AFMC Chief, Technology Investments & Ms. Beth Weiss, AFMC, Senior Scientist
1520 - 1540	STINFO Database R&D information for industry	Ms. Mary Grathwohl, SIDAC Program Manager

GOOD MORNING!

WELCOME--IT'S GREAT TO SEE SO MANY OF OUR S&T FOLKS HERE THIS MORNING--AND IT'S EVEN BETTER TO SEE SO MANY OF OUR INDUSTRY PARTNERS IN THE AUDIENCE. I THINK ALL OF US REALIZE THAT TODAY'S ENVIRONMENT REQUIRES A STRONG PARTNERSHIP TO PROVIDE THE BEST DEFENSE FOR OUR NATION. AND CONFERENCES AND SYMPOSIUMS LIKE THIS ONE ARE ESSENTIAL FOR BUILDING TRUST AND OPENING COMMUNICATION BETWEEN CUSTOMERS AND SUPPLIERS ALIKE...AND IN THE S&T FIELD, WE'RE EACH A LITTLE BIT OF BOTH!.

I THINK YOU'RE IN FOR SOME EXCITEMENT OVER THE NEXT FEW DAYS. OUR AIR FORCE S&T COMMUNITY HAS BEEN LOOKING FOR NEW AND BETTER WAYS TO SHARE INFORMATION SO WE CAN STAND UP TO SOME OF THE BIG CHALLENGES COMING OUR WAY. OVER THE NEXT FEW DAYS, YOU'RE GOING TO HEAR VARIOUS FOLKS DISCUSS HOW EACH OF US CAN BECOME A MORE INTEGRAL PART OF THE PROCESS. YOU'RE ALSO GOING TO HEAR FROM BOTH ARMY AND NAVY FOLKS-AND I'M GLAD THEY ARE HERE. WE'RE DOING VERY LITTLE IN ISOLATION THESE DAYS-IN FACT, WE'VE COINED A PHRASE, "JOINTNESS," TO DESCRIBE TODAY'S STANDARD OPERATING PROCEDURE FOR OUR MILITARY FORCES. JOINT DOCTRINE, JOINT RESEARCH, JOINT DEVELOPMENT, JOINT TRAINING, AND JOINT OPERATIONS ARE ONLY GOING TO EXPAND AS THE MONTHS AND YEARS GO BY. ALL OF US-THE MILITARY SERVICES, INDUSTRY, ACADEMIA, AND OTHER GOVERNMENT AGENCIES--MUST WORK TOGETHER TO EXPLOIT OUR COLLECTIVE RESOURCES IN THE PURSUIT OF THE TECHNOLOGIES THAT OUR MILITARY AND OUR NATION NEEDS.

PICK UP ANY NEWSPAPER OR, BETTER YET, A TRADE JOURNAL AND YOU'LL READ ABOUT NEW TECHNOLOGIES IN DEVELOPMENT THAT FEW OF US IN THIS ROOM WOULD HAVE DREAMED POSSIBLE EVEN TEN YEARS AGO. BUT, WE NEED CONFERENCES LIKE THIS ONE TO KEEP US FOCUSED, LEST WE GET OFF TRACK PURSUING SOME OF THE "GEE-WHIZ" TECHNOLOGIES THAT GAIN HEADLINES, BUT WHICH MAY NOT BE APPLICABLE TO OUR FUTURE DEFENSE STRATEGY. NOT THAT WE SHOULD STIFLE BASIC RESEARCH-BASIC RESEARCH GAVE US STEALTH, SUPERCRUISE, ADAPTIVE OPTICS, AND EVEN FLIGHT ITSELF-BUT WE SHOULD DIRECT OUR LIMITED RESOURCES ON THE TECHNOLOGIES THAT ARE VITAL TO THE FUTURE DEFENSE OF OUR NATION. NOTHING COULD BE MORE IMPORTANT.

BEFORE I DISCUSS WHERE WE'RE HEADED, THOUGH, I WANT TO SPEND A FEW MINUTES DISCUSSING WHERE WE'VE BEEN. FOR THE 35 YEARS I'VE BEEN IN THE AIR FORCE, THE ARMED SERVICES PROCURED WEAPONS SYSTEMS FROM COMMERCIAL INDUSTRY ACCORDING TO STRICT, AND OFTEN CONGRESSIONALLY IMPOSED, RULES AND REGULATIONS. WHENEVER WE HAD AN UNSUCCESSFUL PROGRAM OR A POORLY CONSTRUCTED CONTRACT, CONGRESS ATTEMPTED TO REMEDY THE SITUATION BY ADDING MORE REGULATIONS AND INCREASING ITS OVERSIGHT.

ALMOST FROM THE BEGINNING, WE KNEW WE HAD A CUMBERSOME PROCESS. IN FACT, SINCE THE CREATION OF THE DEPARTMENT OF DEFENSE IN 1947, SOMEONE HAS COMMISSIONED NINE MAJOR STUDIES ON ACQUISITION REFORM--EACH ONE LED BY A BIG-NAME PLAYER. THE FIRST SEVEN STUDIES WERE NAMED AFTER THE COMMISSION CHAIRMEN--NAMES LIKE HOOVER, FITZHUGH, CARLUCCI, GRACE, AND PACKARD. BUT,

BY 1989, PEOPLE HAD STOPPED PUTTING THEIR NAMES ON THEM-I GUESS THEY NO LONGER WANTED TO CLAIM RESPONSIBILITY. THE LAST TWO REPORTS, PUBLISHED IN 1989 AND 1993, WERE TITLED SIMPLY THE "DEFENSE MANAGEMENT REPORT" AND THE "SECTION 800 PANEL REPORT."

THE 1993 REPORT IS THE ONE I WANT TO DISCUSS FOR A MOMENT. THIS LAST STUDY HAS SPURRED MORE CHANGE THAN ALL THE OTHERS COMBINED. ONE DIFFERENCE THIS TIME IS LEADERSHIP--COMMITMENT FROM THE TOP. SECRETARY BILL PERRY IS OUR CREW CHIEF FOR ACQUISITION REFORM-HE IS PERSONALLY LEADING THE WAY--HE HASN'T HANDED THE PROJECT OF REFORMING OUR MILITARY PROCUREMENT SYSTEM TO A DEPUTY ASSISTANT TO THE ASSISTANT UNDER SECRETARY FOR SOMETHING AS OTHERS HAVE IN THE PAST-HE'S COMMITTED TO LEADING IT HIMSELF-AND WE'RE SEEING GREAT PROGRESS. IN THE AEROSPACE INDUSTRY TODAY, THERE IS LESS GOVERNMENT OVERSIGHT THAN THERE'S EVER BEEN IN MY CAREER. INDUSTRY IS BEING GIVEN MORE AND MORE FREEDOM IN DESIGN AND DEVELOPMENT. CONTRACTS THAT WERE ONCE CHARACTERIZED BY "CDRLS PER FORTNIGHT" AND MEASURED IN GROSS TONNAGE WILL NOW BE RATED ON THEIR BREVITY. TODAY, MILSPECs AND STANDARDS ARE BEING REPLACED WITH PERFORMANCE SPECS. IN FACT, IF WE WANT TO REQUIRE COMPLIANCE WITH A MILSPEC TODAY, WE MUST REQUEST A WAIVER TO DO SO. NEEDLESS TO SAY, THEY'RE BECOMING FEW AND FAR BETWEEN!

IN ADDITION TO STREAMLINING THE ACQUISITION SYSTEM, WE HAVE STREAMLINED THE MILITARY FORCE ITSELF. SINCE 1990, OUR AIR FORCE PROCUREMENT BUDGET HAS BEEN SLASHED OVER TWO-THIRDS AND OUR WORKFORCE BY ONE-THIRD... AND WE CONTINUE TO DRAW DOWN. ACCORDING TO NORM AUGUSTINE, THE EFFECT OF THE SO-CALLED "COLD WAR DIVIDEND" ON THE AEROSPACE INDUSTRY HAS BEEN THE EQUIVALENT OF TWO 1929 MARKET CRASHES--AND YOU IN INDUSTRY HAVE HAD TO "DOWNSIZE" 1.3 MILLION JOBS AS A RESULT-A REDUCTION OF OVER 50 PERCENT!

NOW OBVIOUSLY, AS THE MILITARY CONTINUES TO SCALE BACK TO THE SMALLEST IT'S BEEN IN OVER 30 YEARS, WE'RE GOING TO HAVE TO DO A BETTER JOB MANAGING OUR LIMITED RESOURCES. WHO WOULD HAVE THOUGHT 10 YEARS AGO THAT NATIONAL DEFENSE (AS AN R&D MOTIVATOR) WOULD DROP SO DRAMATICALLY. TODAY, YOU FOLKS IN GOVERNMENT AND INDUSTRY R&D AND S&T ARE BEING ASKED TO BE MORE THAN THE WORLD'S BEST SCIENTISTS-YOU MUST ALSO BE AMONG THE WORLD'S BEST BUSINESSMEN AND BUSINESSWOMEN. THE ROLE OF THE SCIENTIFIC MANAGER IS BECOMING EXTREMELY IMPORTANT IN THESE DAYS OF LIMITED RESOURCES-AND THIS CONFERENCE HOPEFULLY WILL GIVE YOU SOME TOOLS TO DO THAT PART OF YOUR JOB BETTER. DURING THE NEXT FEW DAYS, WE PLAN TO SHOW YOU HOW TO BEST TARGET YOUR BUDGET TOWARD RESEARCHING TOMORROW'S VITAL DEFENSE TECHNOLOGIES. THE GOOD NEWS IS: MANY OF YOU ARE ALREADY ON THE RIGHT TRACK!

NOW YOU'VE HEARD THE TERMS "PRIVATIZATION" AND "OUTSOURCING." HERE AT AFMC, WE'RE LOOKING FOR WAYS TO PRIVATIZE, WHERE AND WHEN IT MAKES SENSE TO DO SO, SOME OF OUR DEPOT WORK THAT IS CURRENTLY BEING PERFORMED BY MILITARY MEMBERS OR AIR FORCE CIVILIANS. AND YOU FOLKS-THE S&T COMMUNITY--WHETHER YOU KNOW IT OR NOT-ARE ALREADY LEADING THE WAY IN

THIS AREA. TODAY, THE AIR FORCE OFFICE OF SCIENTIFIC RESEARCH AND OUR AIR FORCE LABS OUTSOURCE NO LESS THAN 80% OF OUR S&T BUDGET TO INDUSTRY AND UNIVERSITIES. OUR LAB ACTIVITY IS ALREADY HEAVILY PRIVATIZED AND WE PLAN FOR IT TO STAY THAT WAY-HOPEFULLY, THE REST OF US IN THE OTHER AREAS OF THE MATERIEL BUSINESS CAN LEARN FROM YOU THE "INS" AND "OUTS" OF OUTSOURCING!

WHAT YOU FOLKS DO IS ABSOLUTELY VITAL TO OUR NATIONAL DEFENSE. DON'T EVER THINK YOUR CONTRIBUTIONS AREN'T IMPORTANT-RESEARCH IS ABSOLUTELY ESSENTIAL TO PROTECTING OUR NATION'S FREEDOM! THIS COUNTRY TAKES ITS COMMITMENT TO SCIENCE VERY SERIOUSLY. TODAY, WE INVEST \$1.4B PER YEAR IN AIR FORCE SCIENCE AND TECHNOLOGY PROGRAMS, AND WE'RE EXPECTING A BUDGET OF AROUND \$1.25B PER YEAR FOR THE NEXT FIVE OR SIX YEARS. FOLKS, IT'S MORE IMPORTANT THAN EVER THAT WE TARGET OUR LIMITED RESOURCES ON THE TECHNOLOGIES MOST VITAL TO MAINTAIN A FREE AND SECURE NATION INTO THE NEXT CENTURY.

IN THE NEXT FEW MINUTES, I WANT TO DISCUSS SOME OF OUR NATION'S TECHNOLOGICAL CHALLENGES THAT WE MUST SOLVE NOW. FIRST, WE MUST LEARN HOW TO BETTER MAINTAIN AND SUSTAIN OUR AGING AIRCRAFT. FOR EXAMPLE, IN OUR CURRENT AIRLIFT INVENTORY, WE HAVE C-141s DESIGNED TO FLY 30,000 HOURS WITH OVER 50,000 HOURS OF FLYING TIME ALREADY, AND WE PLAN TO FLY OUR 30-YEAR-OLD PLUS KC-135 AND T-38 FLEETS ANOTHER 30 YEARS! WE MUST DEVELOP WAYS TO SUSTAIN THESE AIRCRAFT SO OUR GRANDCHILDREN AND GREAT-GRANDCHILDREN CAN FLY THEM. WE NEED TO DEVELOP TECHNOLOGIES TO BETTER DETECT HIDDEN CORROSION... AS WELL AS TO PREVENT IT AND OTHER WEAR AND TEAR IN THE FIRST PLACE. AND IT'S NOT JUST THE OUTSIDE OF THE AIRCRAFT THAT CONCERN US-WE'RE ALSO CONCERNED WITH BACKWARD COMPATABILITY AND INTEROPERABILITY WITH OTHER SYSTEMS AS WE UPGRADE THE WEAPON SYSTEM'S COMPUTERS, AVIONICS, SENSORS AND SOFTWARE. AS OUR FLEET CONTINUES TO AGE, WE'RE GOING TO SEE MORE AND MORE OF THESE TYPES OF PROBLEMS: WE NEED YOUR HELP FINDING SOLUTIONS-QUICKLY AND AFFORDABLY.

NOW AS OUR AIRCRAFT GROW OLDER, OUR SPACE SYSTEMS SEEM TO GET NEWER AND NEWER. THE AIR FORCE IS SERIOUS ABOUT ITS COMMITMENT TO DEVELOPING SPACE AND INFORMATION WARFARE TECHNOLOGIES. WE NEED TO TAKE A HARD LOOK AT WHY WE USE SURVEILLANCE AIRCRAFT OF ALL TYPES TO PERFORM MISSIONS THAT A SATELLITE MIGHT BE ABLE TO DO EVEN BETTER--AND MORE AFFORDABLY--WITHOUT PUTTING A PILOT OR AN AIRPLANE IN DANGER.

WE ALSO NEED TO TAKE A HARD LOOK AT DEVELOPING AND USING ADVANCED SIMULATORS FOR AIRCREW TRAINING. IF WE CAN BUILD A SIMULATOR THAT TRULY GIVES PILOTS AN ACCURATE FLIGHT EXPERIENCE, WE CAN CHANGE MINDSETS, SAVE MONEY AND PROMOTE SAFETY WHILE PROVIDING OUR PILOTS STATE-OF-THE-ART TRAINING. SIMULATOR TRAINING (NO-BETTER SAID-SIMULATOR PROFICIENCY MAINTENANCE) IS BECOMING INCREASINGLY IMPORTANT AS WE'RE SEEING THE IMPACTS OF PRESERVING OUR FLYING TRAINING DOLLARS ON THE REST OF OUR BUDGET.

THE AREAS I'VE JUST MENTIONED ARE WHAT WE'RE DEALING WITH TODAY-BUT WE'RE ALSO LOOKING YEARS INTO THE FUTURE. OF COURSE, AS YOGI SAYS, "I HATE MAKING PREDICTIONS-ESPECIALLY ABOUT THE FUTURE"-BUT THESE "PREDICTIONS" COME FROM VERY RELIABLE SOURCES-AND I THINK YOU NEED TO HEAR ABOUT THEM.

LAST YEAR, SECRETARY WIDNALL AND GEN FOGLEMAN, OUR CHIEF OF STAFF, COMMISSIONED AN AIR FORCE SCIENTIFIC ADVISORY BOARD STUDY CALLED "NEW WORLD VISTAS."

I REVIEWED THE RESULTS OF THE SAB'S REPORT AND THEY ARE EXCITING! WE BELIEVE THAT THE BATTLEFIELD OF THE FUTURE WILL LOOK VERY DIFFERENT FROM A KOREAN CONFLICT, A VIETNAM OR A DESERT STORM-AND WE PLAN TO BE READY. TOMORROW'S SURVEILLANCE INFO MAY WELL BE COLLECTED BY UNMANNED AERIAL VEHICLES "PILOTED" BY SOMEONE SITTING AT A COMPUTER TERMINAL. TOMORROW'S TARGETS MAY BE DESTROYED BY DIRECTED ENERGY WEAPONS MOUNTED ON FIGHTER AIRCRAFT FLYING ORDERS OF MAGNITUDE HIGHER AND/OR FASTER THAN TODAY'S. TOMORROW'S INTELLIGENCE MAY BE GATHERED BY SATELLITES, ALLOWING TOTAL GLOBAL VISIBILITY... DOWN TO MULTISPECTRAL RESOLUTIONS UNHEARD OF TODAY. THESE TECHNOLOGIES ARE NOT SOMETHING DREAMED UP BY GEORGE LUCAS OR STEPHEN SPIELBERG-THEY ARE CONCEIVABLE, DOABLE, AND IMPLEMENTABLE... PERHAPS EVEN SOONER THAN WE THINK.

THE AIR FORCE IS COMMITTED TO PURSUING THE NEW WORLD VISTAS CONCEPTS; IN FACT, WE'VE ALREADY ALLOCATED \$175M OVER THE NEXT FIVE YEARS TO BE APPLIED TO BASIC RESEARCH DIRECTLY FOCUSED IN PURSUIT OF THESE TECHNOLOGIES.

I APPLAUD YOU FOR COMING HERE THIS WEEK: IT SHOWS YOUR COMMITMENT TO PURSUING THE RESEARCH YOUR NATION NEEDS YOU TO DO. I HAVE NO DOUBT THAT WORKING TOGETHER, WE CAN DISCOVER THE SOLUTIONS TO THE TECHNOLOGICAL PROBLEMS I'VE DESCRIBED--THE CHALLENGE WILL BE TO DO IT EFFICIENTLY AND AFFORDABLY. BUT WE'RE WORKING ON THAT, TOO.

ONE WAY WE'RE BECOMING BETTER BUSINESS PEOPLE IS THROUGH INTERSERVICING. WHAT A GREAT OPPORTUNITY YOU HAVE TO HEAR FROM THE AIR FORCE, THE ARMY, AND THE NAVY S&T COMMUNITIES DURING THIS CONFERENCE. THIS GROUP KNOWS BETTER THAN ANYONE HOW IMPORTANT SYNERGY AMONG THE SERVICES IS TO OUR FUTURE. WE'RE WORKING TOGETHER TO MAKE THE MOST EFFICIENT USE OF OUR INFRASTRUCTURE. AS MOST OF YOU KNOW, CONGRESS DIRECTED US TO REDUCE THE COST OF OUR LAB AND TEST INFRASTRUCTURE DoD-WIDE. OSD HAS ESTABLISHED A GOAL OF 20% REDUCTION, BUT I THINK WE CAN DO EVEN BETTER. THIS REDUCTION WILL BE A REAL CHALLENGE--AND MAY WELL MEAN THE CLOSURE OF ADDITIONAL FACILITIES-A TURN OF EVENTS YOU IN INDUSTRY SHOULD USE TO YOUR ADVANTAGE. SHOW US PLACES THAT YOU THINK YOU COULD DO WHAT IS NOW "GOVERNMENT" RESEARCH FASTER, BETTER, AND CHEAPER, AND WE MAY SURPRISE YOU WITH OUR WILLINGNESS TO CONSIDER FURTHER OUTSOURCING OPPORTUNITIES.

A SECOND WAY WE'RE STREAMLINING OUR PROCESSES IS THROUGH OUR LIGHTNING BOLTS--WHICH MOST OF YOU KNOW ARE THE ACQUISITION REFORM INITIATIVES WE THOUGHT WE COULD IMPLEMENT ON OUR OWN WITHOUT WAITING FOR OSD POLICY CHANGES OR CONGRESS TO ACT. SCIENCE AND TECHNOLOGY HAS ITS OWN LIGHTNING BOLT--NUMBER 11-AIMED AT IMPROVING BUSINESS PROCESSES, REDUCING PROCUREMENT CYCLE TIMES, AND ESTABLISHING COMMON PROCESSES ACROSS ALL OUR LABS.

WE'VE ALREADY SEEN SOME PROGRESS TOWARD THESE GOALS. S&T CONTRACTS ARE BEING WRITTEN 35% FASTER THAN JUST A FEW YEARS AGO-A PERCENTAGE WE HOPE TO FURTHER INCREASE AS WE BEGIN TO DEVELOP STANDARD PROCESSES FOR SOLICITATIONS AND CONTRACTS.

SEVERAL WEEKS AGO, GEN PAUL AND I HOSTED A VISIT OF THE DEFENSE SCIENTIFIC STUDY GROUP. THE PROFESSORS AND SCIENTISTS IN THE GROUP ASKED ABOUT OUR PLANS TO SHIFT TO PAPERLESS PROCESSES. S&T IS LEADING THE WAY, IMPLEMENTING ELECTRONIC COORDINATION, REDUCING PLANNING DOCUMENTATION, AND CUTTING PROGRAM REVIEWS BY 50%. WITH FEWER REVIEWS, WE WILL BE EXPECTING YOU IN INDUSTRY TO ASSUME MORE ACCOUNTABILITY IN SAFEGUARDING AMERICA'S INVESTMENT-A ROLE TRADITIONALLY RESERVED EXCLUSIVELY FOR THE SERVICES. TAKE THIS RESPONSIBILITY SERIOUSLY-IT IS AN HONOR AND A PRIVILEGE TO BE ENTRUSTED WITH THE HARD-EARNED DOLLARS OF YOUR FELLOW TAX PAYERS.

WELL, IN CLOSING, LET ME JUST SAY THAT I FEEL THIS CONFERENCE WILL HELP POINT YOU IN THE RIGHT DIRECTION, SHOWING YOU HOW YOU CAN BEST CONTRIBUTE. YOU WILL LEARN IN THE NEXT FEW DAYS ABOUT NEW AND BETTER WAYS TO EXCHANGE INFORMATION THROUGH NEW SECURE WEB SITES AND THE DEFENSE TECHNICAL INFORMATION CENTER. IN A JOINT EFFORT WITH INDUSTRY AND DTIC, THE AIR FORCE HELPED PIONEER DOD'S UTILIZATION OF CD-ROMS TO STORE OUR ANNUAL IR&D REPORTS. WE CAN NOW EASILY ACCESS YOUR RESEARCH INFORMATION AND ELECTRONICALLY MATCH IT WITH DEFENSE NEEDS. TO DATE, THE AIR FORCE HAS ALREADY IDENTIFIED OVER \$500M WORTH OF INDUSTRY RESEARCH THAT COULD BE USED TO SUPPORT OUR REQUIREMENTS. THE WEB SITE, WHICH YOU WILL SEE DEMONSTRATED THIS AFTERNOON, PROVIDES BOTH GOVERNMENT AND INDUSTRY IMMEDIATE, SECURE ACCESS TO THE AIR FORCE'S S&T PLANNING INFORMATION. I'M PROUD TO SAY THAT NEARLY EVERY MAJOR DOD COMPANY CENTER ACROSS THE COUNTRY HAS A REPRESENTATIVE REGISTERED TO USE THIS SITE.

YOU ALL ARE ON THE RIGHT TRACK-BUT REMEMBER, AS PRESIDENT EISENHOWER ONCE SAID, "NEITHER A WISE NOR A BRAVE PERSON LIES DOWN ON THE TRACKS OF HISTORY TO WAIT FOR THE TRAIN OF THE FUTURE TO RUN OVER HIM." I CHALLENGE YOU TO KEEP PRESSING, KEEP BREAKING NEW GROUND AND DISCOVERING NEW TECHNOLOGIES. DEFINING THE FUTURE IS TOUGH, BUT I'M CONVINCED WE'RE FOCUSED IN THE RIGHT DIRECTION-THE DEFENSE OF OUR NATION IS IN YOUR HANDS. LET'S WORK TOGETHER TO BUILD A STRONGER AMERICA FOR US ALL.

HAVE A GREAT CONFERENCE!



BIOGRAPHY

UNITED STATES AIR FORCE

GENERAL HENRY VICCELLIO, JR.

General Henry Viccellio Jr. is commander of the Air Force Materiel Command which is headquartered at Wright-Patterson Air Force Base, Ohio. The Air Force Materiel Command researches, develops, tests, acquires and provides logistics support necessary to keep Air Force units and weapon systems in readiness, and to sustain their operations in peace and war. The command manages these systems through 21 specialized centers from their inception on the drawing board to retirement from the inventory.

The general was commissioned following graduation from the U.S. Air Force Academy in 1962. He has held a variety of assignments in flying and logistics fields, as well as command positions at the wing, center and Air Staff levels. He is a command pilot with more than 3,300 hours in fighter aircraft, including 235 combat missions in Southeast Asia.



General Viccellio and his wife, Debbie, have a daughter, Pilar, and a son, Benjamin.

EDUCATION:

1962 Bachelor of science degree, U.S. Air Force Academy, Colorado Springs, Colo.

1968 Olmsted Scholar, National Autonomous University of Mexico, Mexico City.

1969 Master of arts degree in Latin American studies, American University, Washington, D.C.

1973 Armed Forces Staff College, Norfolk, Va.

ASSIGNMENTS:

1. June 1962 - September 1963, student, pilot training, Webb Air Force Base, Texas
2. October 1963 - June 1964, student, F-100 combat crew training, Luke Air Force Base, Ariz.
3. June 1964 - October 1965, F-100 pilot, 309th Tactical Fighter Squadron, Homestead Air Force Base, Fla.
4. October 1965 - October 1966, A-1E pilot, 602nd Fighter Squadron, Udorn Royal Thai Air Force
Udorn, Thailand

base, Thailand

5. October 1966 - October 1968, Olmsted Scholar, National Autonomous University of Mexico, Mexico City
6. October 1968 - June 1969, student, master of arts degree in Latin American studies, American University, Washington, D.C.
7. June 1969 - August 1970, Air Staff Training program, staff officer, directorate of concepts and doctrine, Headquarters U.S. Air Force, Washington, D.C.
8. August 1970 - November 1971, F-4D maintenance officer, 7th Tactical Fighter Squadron, Holloman Air Force Base, N.M.
9. November 1971 - January 1973, F-4D flight commander, 36th Tactical Fighter Squadron, Osan Air Base, South Korea
10. January 1973 - July 1973, student, Armed Forces Staff College, Norfolk, Va.
11. July 1973 - October 1975, liaison officer, U.S. Senate
12. November 1975 - April 1976, chief, standardization and evaluation division, 33rd Tactical Fighter Wing, Eglin Air Force Base, Fla.
13. April 1976 - November 1976, operations officer, 59th Tactical Fighter Squadron, Eglin Air Force Base, Fla.
14. December 1976 - May 1977, commander, 58th Tactical Fighter Squadron, Eglin Air Force Base, Fla.
15. May 1977 - November 1977, assistant deputy commander for operations, 33rd Tactical Fighter Wing, Eglin Air Force Base, Fla.
16. November 1977 - March 1981, chief, rated officer career management branch, Air Force Manpower and Personnel Center, Randolph Air Force Base, Texas
17. March 1981 - September 1981, vice commander, 507th Tactical Air Control Wing, Shaw Air Force Base, S.C.
18. October 1981 - March 1983, vice commander, later, commander, 56th Tactical Training Wing, MacDill Air Force Base, Fla.
19. March 1983 - June 1985, commander, 1st Tactical Fighter Wing, Langley Air Force Base, Va.
20. July 1985 - September 1986, vice commander, San Antonio Air Logistics Center, Kelly Air Force Base, Texas
21. September 1986 - April 1989, deputy chief of staff for logistics, Headquarters Tactical Air Command, Langley Air Force Base, Va.
22. May 1989 - September 1989, vice commander, Headquarters Tactical Air Command, Langley Air Force Base, Va.

Force Base, Va.

23. September 1989 - February 1991, deputy chief of staff for logistics and engineering, Headquarters U.S. Air Force, Washington, D.C.

24. February 1991 - May 1991, deputy chief of staff for logistics, Headquarters U.S. Air Force, Washington, D.C.

25. May 1991 - December 1992, director, the Joint Staff, Washington, D.C.

26. December 1992 - June 1995, commander, Air Education and Training Command, Randolph Air Force Base, Texas

27. June 1995 - present, commander, Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio

FLIGHT INFORMATION:

Rating: Command pilot

Flight hours: More than 3,300

Aircraft flown: F-100, A-1E, F-4D/E, F-16 and F-15

MAJOR AWARDS AND DECORATIONS:

Defense Distinguished Service Medal

Distinguished Service Medal

Legion of Merit with oak leaf cluster

Distinguished Flying Cross with oak leaf cluster

Meritorious Service Medal with oak leaf cluster

Air Medal with 11 oak leaf clusters

Republic of Vietnam Gallantry Cross with Palm

EFFECTIVE DATES OF PROMOTION:

Second Lieutenant Jun 6, 1962

First Lieutenant Dec 6, 1963

Captain Dec 6, 1966

Major Mar 1, 1971

Lieutenant Colonel May 1, 1975

Colonel May 1, 1978

Brigadier General Oct 1, 1984

Major General Aug 1, 1987

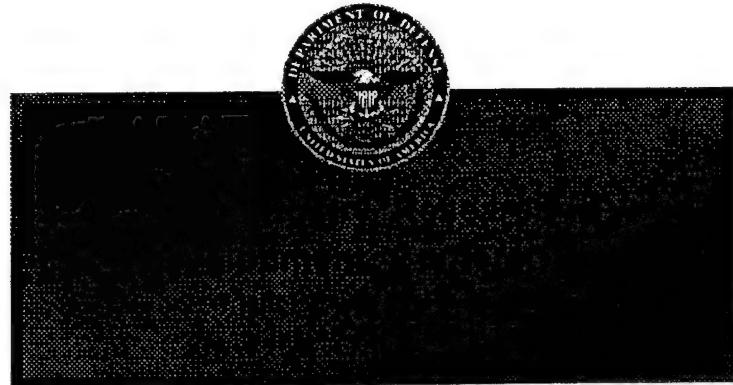
Lieutenant General May 1, 1989

General Dec 1, 1992

(Current as of August 1995)



This document was last modified 29-Jul-96 08:31



**Dr. Lance A. Davis
Deputy Director, Defense Research and Engineering
Office of the Secretary of Defense
The Pentagon
Washington, DC**

DoD / Industry Information Exchange



**10 U.S.C. Section 2372 -
IR&D Costs: Payments to Contractors:**

- (c)(3) Implementation of regular methods for transmission-
- (A) from DoD to contractors, in a reasonable manner, of ... planned or expected future needs; and
 - (B) from contractors to DoD, in a reasonable manner, of ... progress by the contractor on the contractor's IR&D programs.

Defense S&T Program Certification

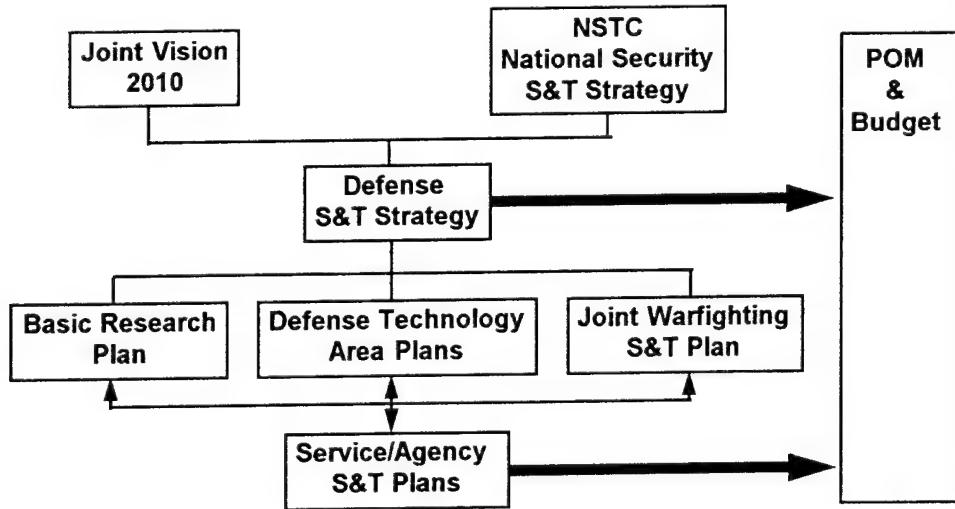


The Director of Defense Research and Engineering is required by law to certify to the Secretary of Defense that the S&T Program as planned is the best investment of resources that can be made

07/29/96

Chart 3

Defense S&T Strategic Planning



07/29/96

Chart 4

Joint Warfighting S&T Plan



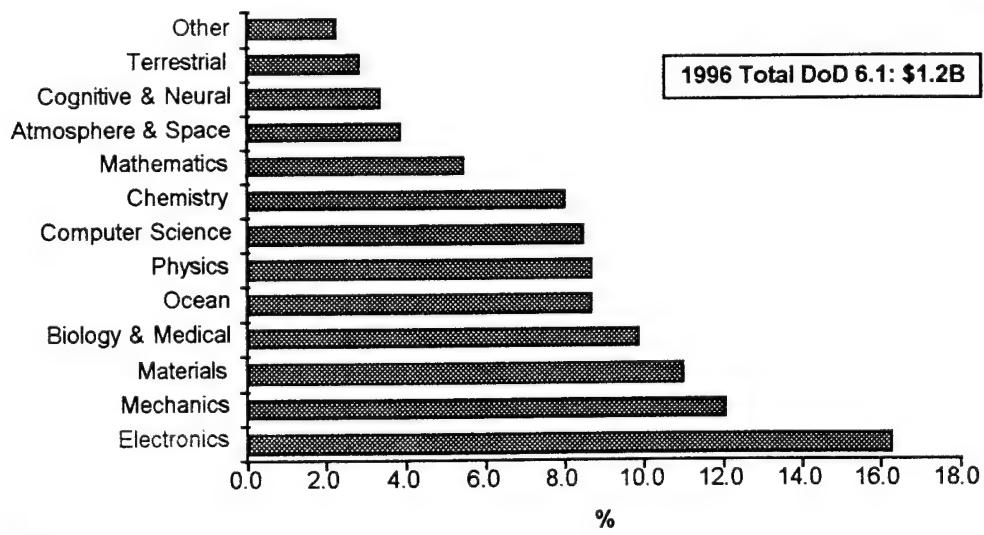
Joint Warfighting Capability Objectives

- Dominant Battlespace Knowledge
- Combat Identification
- Information Warfare
- Electronics Warfare
- Precision Force
- Joint Theater Missile Defense
- Counter Proliferation
- Chemical-Biological Warfare Detection
- Mobile Operations in Urban Terrain
- Joint Countermine
- Joint Readiness
- Real Time Logistics Control

07/29/96

Chart 5

1996 Defense Basic Research by Discipline



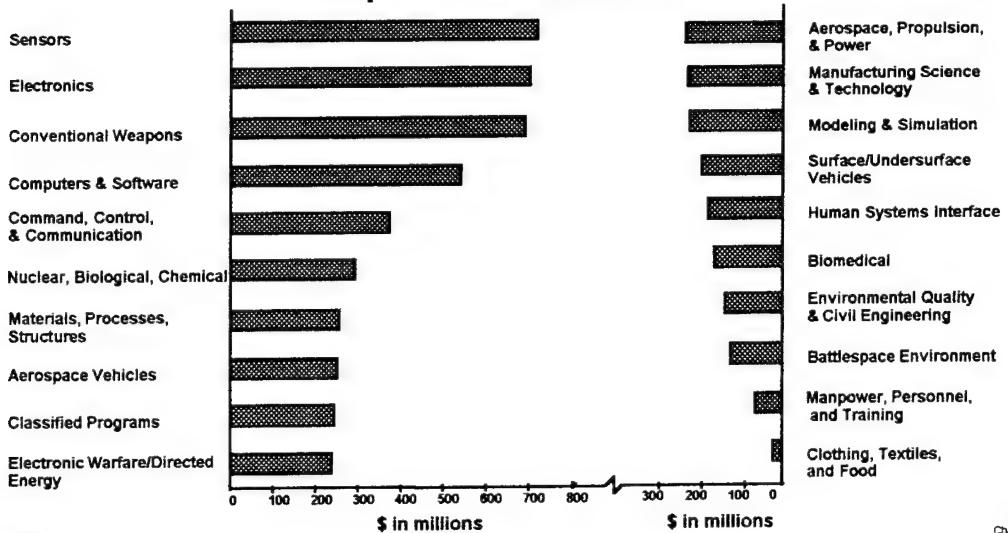
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Chart 6

FY 1996 Technology Funding by Area



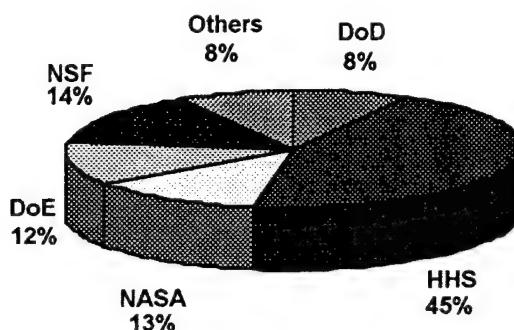
Comprehensive Investment



07/29/96

Chart 7

1995 Federal Basic Research - (6.1 Funding)



DoD - Defense (\$1.2B)*

HHS - Health (\$6.3B)

NASA - Space (\$1.8B)

DOE - Energy (\$1.7B)

NSF - General Science (\$2.0B)

All Others (\$1.2B)

1995 Total Federal Basic Research: \$14.2B

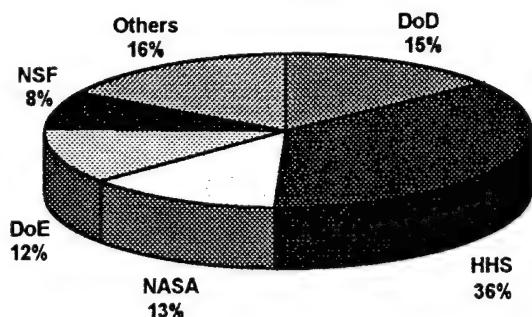
Source: Federal Funds for R&D NSF Report #95-334

* DoD - Appropriated

07/29/96

Chart 8

1995 Federal Research by Activity - (6.1 + 6.2 Funding)



DoD - Defense (\$4.2B)*
HHS - Health (\$10.1B)
NASA - Space (\$3.7B)
DoE - Energy (\$3.4B)
NSF - General Science (\$2.2B)
All Others (\$4.6B)

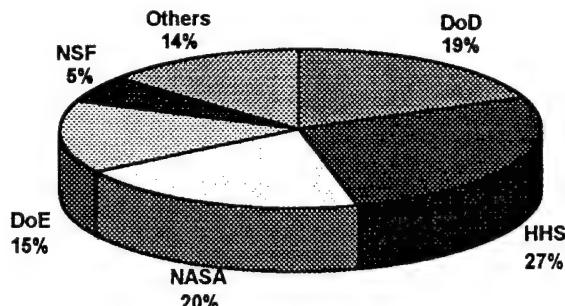
1995 Total Federal Research: \$28.2B

Source: Federal Funds for R&D NSF Report #95-334
* DoD - Appropriated

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Chart 9

1995 Federal S&T by Activity - (6.1 + 6.2 + 6.3 Funding)



DoD - Defense (\$8.1B)*
HHS - Health (\$11.5B)
NASA - Space (\$8.6B)
DoE - Energy (\$6.4B)
NSF - General Science (\$2.2B)
All Others (\$5.8B)

1995 Total Federal S&T: \$42.6B

Source: Federal Funds for R&D NSF Report #95-334
* DoD - Appropriated

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Chart 10

DoD Is The Dominant Investor in Critical Fields In the Technology Base - (\$FY95)



Electrical Engineering	82%
Metallurgy & Materials	73%
Mechanical Engineering	75%
Computer Science	53%
Civil Engineering	39%
All Engineering	38%
Mathematics	26%

All Federal Funding	15%
---------------------	-----

Note: 6.1 & 6.2 Funding only

Source: Federal Funds for R&D NSF Report #95-334

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Chart 11

1996 DoD RDT&E Budget



Account No.	FY 1996 Funding (\$ Billions)	Categories	Example
6.1	\$1.2	Basic Research	Corrosion Physics
6.2	\$2.8	Exploratory Development	Superconducting Materials
Subtotal (6.1-6.2)	\$4.0		
6.3	\$3.8	Advanced Development	Synthetic Aperture Radar
Subtotal (6.1-6.3)	\$7.8		
6.4	\$4.2	Demonstration Validation	Theater Missile Defense
6.5	\$8.8	Engineering Mfg Devel	F-22
6.6	\$3.3	Management Support	Test Range Operation
6.7	\$10.2	Operational Systems Devel	Field Engineering Support
Subtotal (6.4-6.7)	\$26.5		
Total FY 96 RDT&E	\$34.3		

Source: FY 1996 President's Budget (DoD R-1)

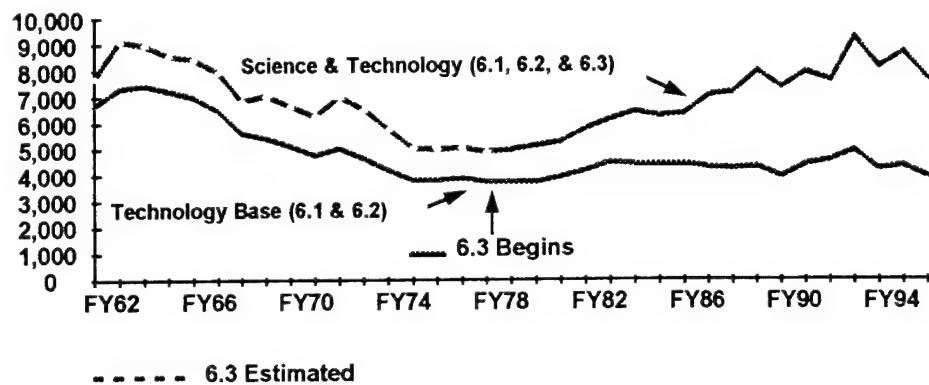
07/29/96

Chart 12

Basis for a Legacy



\$ in millions



07/29/96

FY96 Constant Dollars
Chart 13

IR&D from DoD Perspective



IR&D consists of research performed at contractor discretion when such research:

- 1) is not required by the terms of a contract;
- 2) is intended to advance technology or to develop new or improved products; and,
- 3) is of potential interest to the Department of Defense

07/29/96

Chart 14

Approved IR&D Activities



The 1991 Public Law (P.L. 102 - 190)

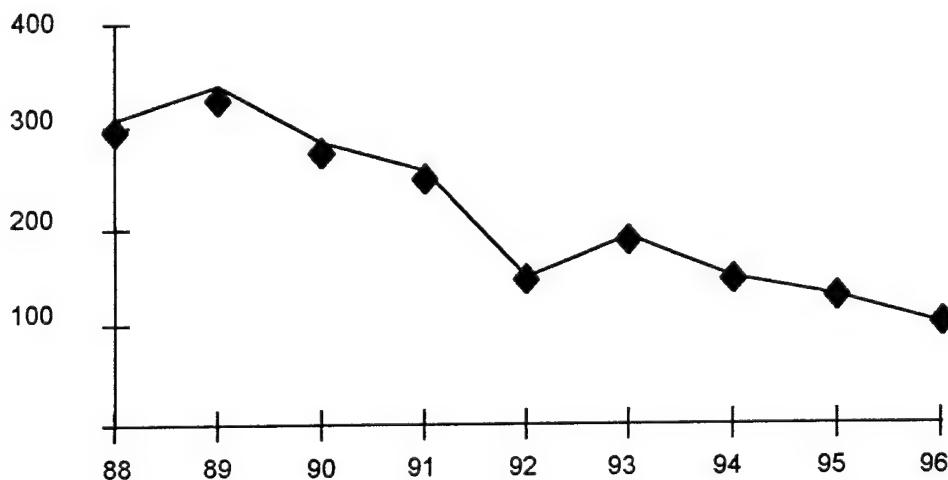
Broadened the Types of R&D Activities of Potential Interest to DoD to Include Activities Intended to:

- Enable Superior Performance of Future Weapon Systems
- Reduce Acquisition and Life-Cycle Costs of Military Systems
- Strengthen the U.S. Defense Industrial Base & Tech Base
- Enhance the Industrial Competitiveness of the U.S.
- Promote Development of Critical Technologies
- Develop and Promote Efficient/Effective Dual-Use Technologies
- Provide Technologies for Achieving Environmental Benefits

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Chart 15

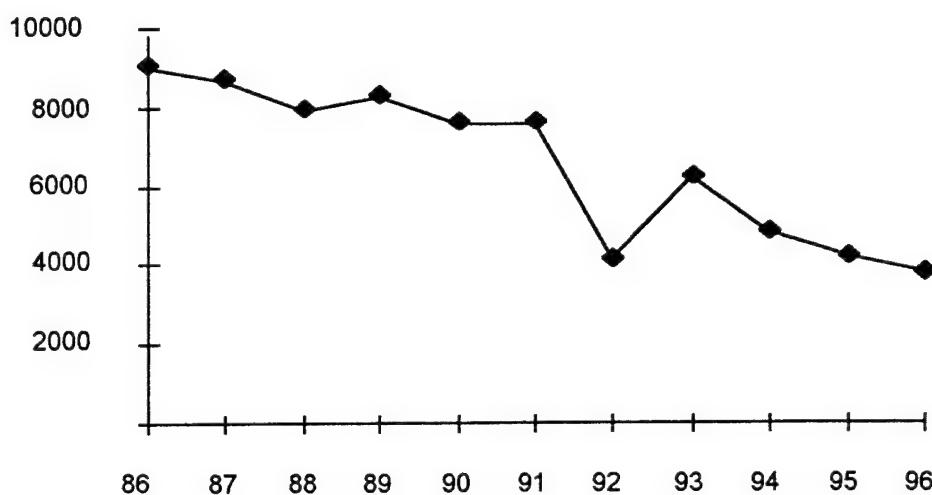
Number Contractors / Cost Centers Reporting



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Chart 16

Number IR&D Projects Reported



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Chart 17

IR&D Statistics



1994

- IR&D Costs Incurred: \$ 2.9 B
- IR&D Costs Allowable: \$ 2.8 B
- IR&D Costs Reimbursable: \$ 1.7 B

-
- Project Value in DTIC Database: \$ 2.3 B

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Chart 18

Summary



- DoD Research and Development Investment is Critical to Maintaining Technological Superiority for the Warfighter
- IR&D is a Critical Component of the DoD's Research and Development Infrastructure
- Working to Develop an IR&D Program Which is a Win-Win for Industry and the DoD
- This Conference Designed to Enhance the Partnership between Industry and the DoD for IR&D

07/29/06

Chart 19



Dr. Lance A. Davis

Deputy Director, Defense Research & Engineering

Office of Laboratory Management/Technology Transition

The Pentagon, Washington, DC

PROFESSIONAL EXPERIENCE:

DEPARTMENT OF DEFENSE, Washington, DC (1994-)

Deputy Director, Defense Research and Engineering, Office of Laboratory Management and Technology Transition (7/95-). Responsible for oversight of the DoD laboratory system, particularly the Laboratory Quality Improvement Program, and DoD technology transfer activities.

Deputy Director, Defense Research and Engineering, Office of Technology Transition (1/94 - 7/95) Joined the Office of the Secretary of Defense as a White House appointee. Charged with facilitating dual use technology development and technology transfer activities of the DoD.

ALLIED SIGNAL INC., Morristown, NJ (1968-1993)

Vice President, Research and Development (1984-1993) Within this \$12B corporation, directed a staff of up to 450 with an annual expense budget of \$56MM and a capital budget of \$6MM engaged in research and new product development related to materials and devices. Previously served as, Director, Materials Laboratory; Manager, Metglas Development; Manager, Strength Physics Department; and Research Staff Applied Scientist.

YALE UNIVERSITY (1966-1968)

Post Doctoral Fellow in the Department of Engineering and Applied Science

EDUCATION:

Ph.D., Engineering and Applied Science (1966) and

M. Engineering (1963), Yale University

B.S., Metallurgical Engineering, Lafayette College, Summa Cum Laude (1961)

HONORS:

Elected to National Academy of Engineering in 1992 in recognition of contributions to development of Allied's proprietary Metglas alloys business.

Phi Beta Kappa, Tau Beta Pi

PUBLICATIONS, PRESENTATIONS, PATENTS:

Author or co-author of 53 technical papers related to the synthesis, microstructure and properties of materials.

Co-holder of 6 U.S. patents related to Metglas alloys.

Invited speaker at 21 major national or international scientific meetings.

[DDDR&E\(LM/OTT\) Home Page](#)

[LabLINK Home Page](#)

[TechTRANSIT Home Page](#)



AIR FORCE SCIENCE & TECHNOLOGY

Improving S&T Business Processes

10 JULY 1996

Mr Tim Dues
Chief, Plans and Programs Division
Science and Technology Directorate
Headquarters Air Force Materiel Command



OVERVIEW

- IR&D activities
- Acquisition Reform activities
 - Lightning Bolt # 11 - Improving laboratory business processes
- Summary



IR&D INTRODUCTION

With a modest investment we are able to:

- Use industry's IR&D efforts to:

Solve many existing Air Force technical requirements
saving the Air Force hundreds of millions of dollars
each year ... save money

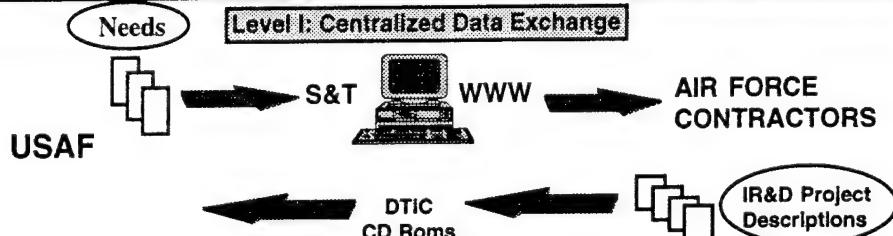
Accelerate integrating state-of-the-art technology
into current and future Air Force systems ... save time

- Annually influence billions of dollars of industry's R&D
research to solve future Air Force requirements ... plan
our future with industry

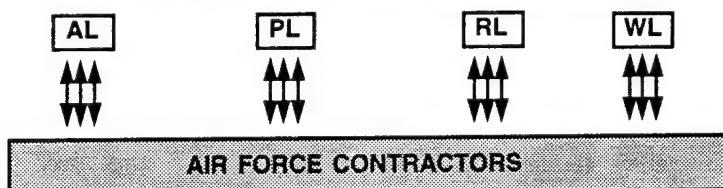
9/18/98 - 3



AF IR&D PROCESS OVERVIEW



Level II: Decentralized Face-To-Face Dialogue



9/18/98 - 4



S&T WORLD WIDE WEB ACTIVITIES

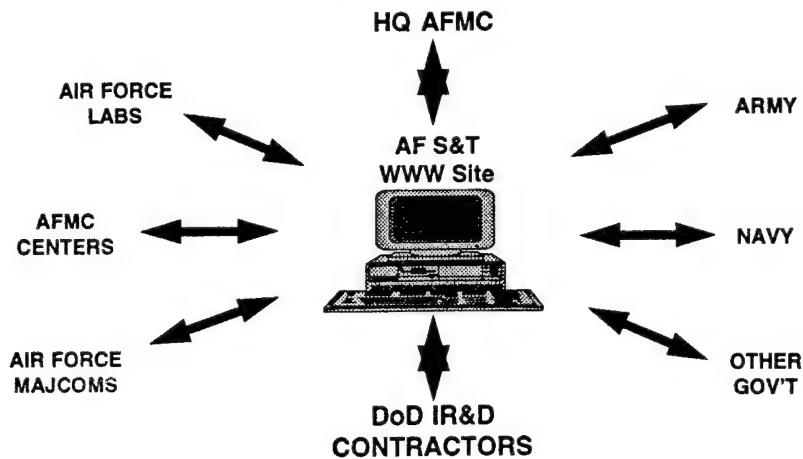
- Implement public S&T WWW server
 - <http://www.afmc.wpafb.af.mil/STBBS>
- Implement controlled S&T WWW server
 - Using NetScape's commerce server
 - Initiated with DTIC a WWW user ID assignment procedure
 - Send software, user ID & password to WWW users
- Advertise WWW site in CBD
- Collection effort to obtain top 9 industry- requested data items
- Continuously improve WWW site
- Support STINFO database

91090 - 5



S&T WWW SITE DEVELOPMENT ELECTRONIC DATA TRANSFER

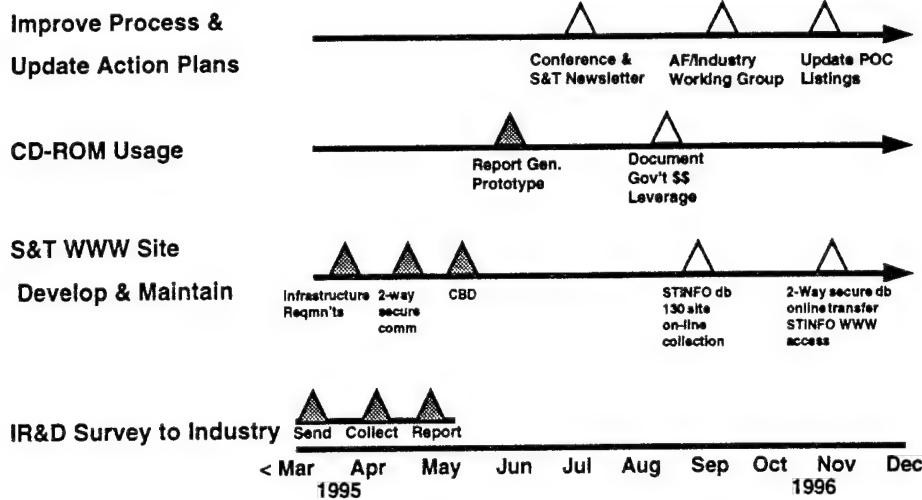
JOINT AFMC EFFORT w/ DTIC & DDR&E
TO PROVIDE ELECTRONIC DATA TRANSFER CAPABILITIES



91090 - 6



FUTURE ACTIVITIES



91096-7



OVERVIEW

- IR&D activities
- Acquisition Reform activities
 - Lightning Bolt # 11 - Improving laboratory business processes
- Summary

91096-8



LIGHTNING BOLT # 11 DEFINITION

Deputy Secretary of the Air Force-directed acquisition reform effort. Goals:

Enhance the capabilities of our laboratories by adopting improved business processes learned from our weapon system acquisition reform efforts.

Common processes will become the standard across all laboratories. Reduced cycle times and documentation will be a goal for all initiatives under this Lightning Bolt.

Lightning Bolts 1, 3, 6, & 9 will be integrated/tailored for the science and technology community.

91098 - 9



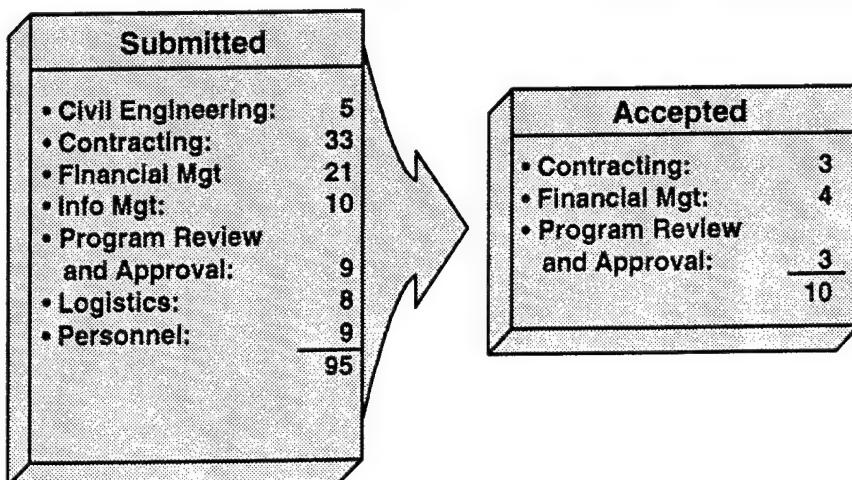
APPROACH

- **Solicit inputs from HQ AFMC “functionals” and the field (labs & AFOSR)**
- **Screen submitted inputs and identify most promising candidates as LB #11 initiatives. Criteria:**
 - Significantly improve efficiency of S&T planning and execution
 - A “MUST DO” to compensate for manpower reductions
 - Be measurable
 - Be implementable within one year
 - Provide basis for “common processes”
- **Retain non-selected initiatives for future consideration**

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RESULTS



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S&T BUSINESS PROCESSES

SCIENCE AND TECHNOLOGY EFFORTS

- Good Commercial Business Practices
- LB 1 - RFP Support Team
 - LB 2 - Acquisition Strategy Reviews
 - LB 3 - Laboratory Sizing
 - LB 4 - Review all AF S&T Policies
 - LB 6 - Enhance Role of Past Perf.
 - LB 7 - Streamline Documentation
 - LB 8 - Develop Acq Reform Metrics
 - LB 9 - Education and Training
 - LB 10 - Reducing Cycle Time

Contracting

Financial Management

Program Review & Approval

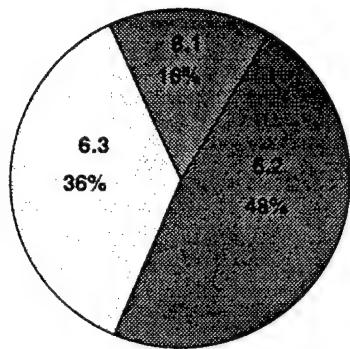
11

01/090 - 12



AF S&T FUNDING

FY 96 POM
(96 -01)



6.1 = Basic research
6.2 = Applied technology
6.3 = Advanced technology development

(FY 96 TOTAL: \$1.32B)

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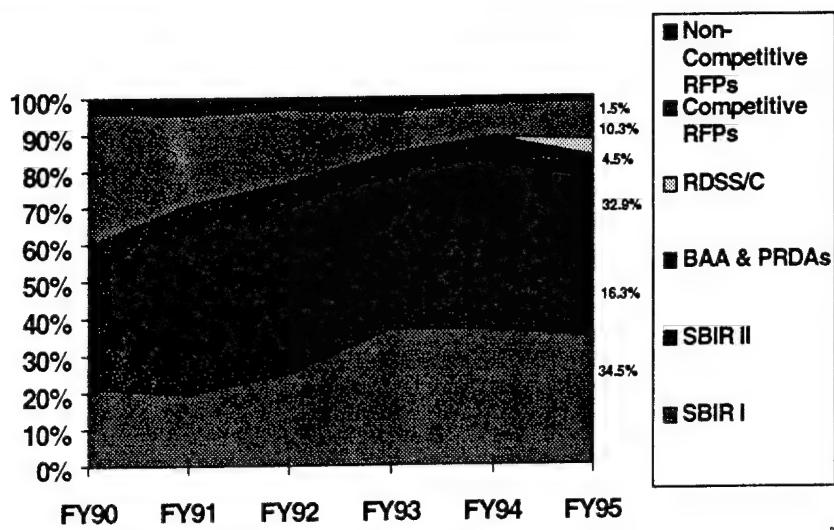
CONTRACT AND ASSISTANCE PROCESSES & INSTRUMENTS

<u>Process</u>	<u>Instrument</u>	<u>Budget Program</u>
Broad Agency Announcement (BAA)	Grants/Contracts	6.1
Program Research & Development Announcement (PRDA)	Contracts	6.2
Small Business Innovation Research Program (SBIR)	Contracts	6.1, 6.2, 6.3, 6.4 (held in 6.5)
Request for Proposals (RFP)	Contracts	6.3
Various Commerce Business Daily (CBD) Announcements	Cooperative Agreements & Other Transactions	6.1, 6.2, 6.3

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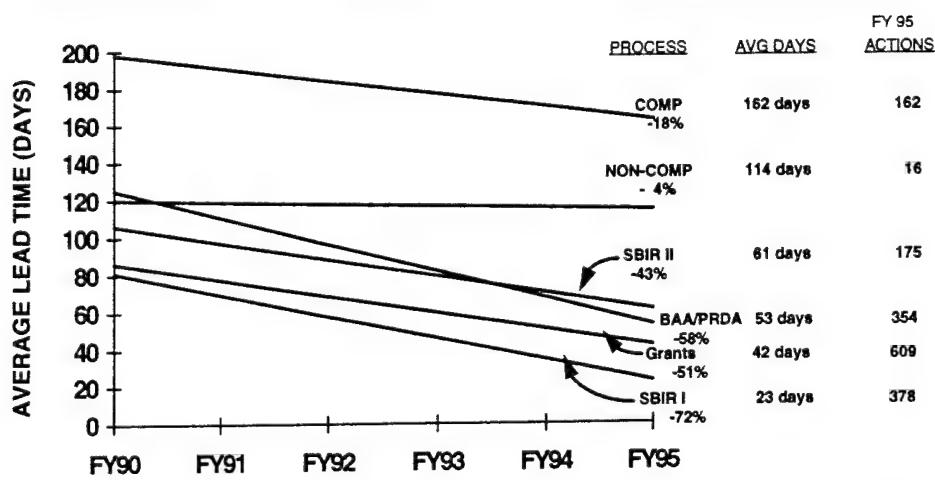
SOLICITATION PROCESSES USED IN S&T CONTRACTING



9/16/96 - 15



S&T CONTRACTING & ASSISTANCE LEAD TIMES (PRI acceptance to award)



9/16/96 - 16



LIGHTNING BOLT #11 CONTRACTING INITIATIVES

- LB 11.1: Streamline traditional RFP process (6.3) by implementing RDSS/C on permanent basis
- LB 11.2: Further streamline BAA/PRDA process (6.1 & 6.2) by reducing time to evaluate proposals and select sources
- LB 11.3: Expand use of "other transactions" (OTs) to support research, technology development and prototypes

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R&D STREAMLINED SOLICITATION STANDARD CONTRACT (RDSS/C) PROCEDURES

- Tri-Service Lab Demo initiative directed by Director, Defense Procurement (DDP) (Mrs. Spector)
 - Eliminates non-value added content by tailoring process and instruments to "R&D" arena
 - Simplifies solicitation process (CBD Announcement vs. RFP)
 - Uniform format across services - "One face to Industry" (R&D Standard Contract—clauses by reference in DFARS)
- 20 month (1 Oct 94 - 31 May 96) test case for cost-type R&D requirements under \$10 M
- Implementation decision pending

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LB 11.1 RFP & RDSS/C PROCESSES

	CBD & Proposal Prep	Lead Time for Source Selection & Contract Award	
FY 90	30 days	168 days	198

FY 95	30 days	132 days	162*
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*Reduction attributed to early collaboration of technical/contracting personnel

RDSS/C TEST	30 days	96 days	126**
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**Streamlined solicitations and standardized contracts

RDSS/C FY 96/97 GOAL	30 days	60 days	90
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LIGHTNING BOLT #11 CONTRACTING INITIATIVES

- LB 11.1: Streamline traditional RFP process (6.3) by implementing RDSS/C on permanent basis
- LB 11.2: Further streamline BAA/PRDA process (6.1 & 6.2) by reducing time to evaluate proposals and select sources
- LB 11.3: Expand use of "other transactions" (OTs) to support research, technology development and prototypes

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LB 11.2
FURTHER STREAMLINE BAA/PRDA
PROCESS (6.1 & 6.2)

	Evaluate Proposal/ Select Source	Lead time to Negotiate/Award	
FY 90	100 days	125 days	225
FY 95	100 days	53 days	153
FY 96/97 GOAL	45 days	45 days	90

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LIGHTNING BOLT #11
CONTRACTING INITIATIVES

- LB 11.1: Streamline traditional RFP process (6.3) by implementing RDSS/C on permanent basis
- LB 11.2: Further streamline BAA/PRDA process (6.1 & 6.2) by reducing time to evaluate proposals and select sources
- LB 11.3: Expand use of “other transactions” (OTs) to support research, technology development and prototypes

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LB 11.3

OTHER TRANSACTIONS (FOR RESEARCH)

- **Description:** Non-FAR based agreements used to support basic, applied, and advanced research when standard contracts, grants, or cooperative agreements not appropriate or feasible
- **Authorized by** 10 U.S.C. 2358 and 2371
- **Advantages:**
 - Provides flexibility (FAR not applicable)
 - Permits use of commercial practices (i.e., intellectual property)
- **Used extensively by DARPA since 1989**
 - DDR&E did not give authority to services until FY94
 - AF has used OTs for DARPA projects—none for AF projects

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LB 11.3

OTHER TRANSACTIONS (FOR PROTOTYPES)

- **Description:** Non-FAR based agreements for DARPA to carry out prototype projects directly relevant to weapon systems to be acquired or developed by DoD
- **Authorized by** Section 845, FY94 DoD Appropriations Act
- **Advantages:**
 - No cost sharing required
 - No requirement to determine if other instruments feasible
- **Used by DARPA on Tier II+ and Tier III-**

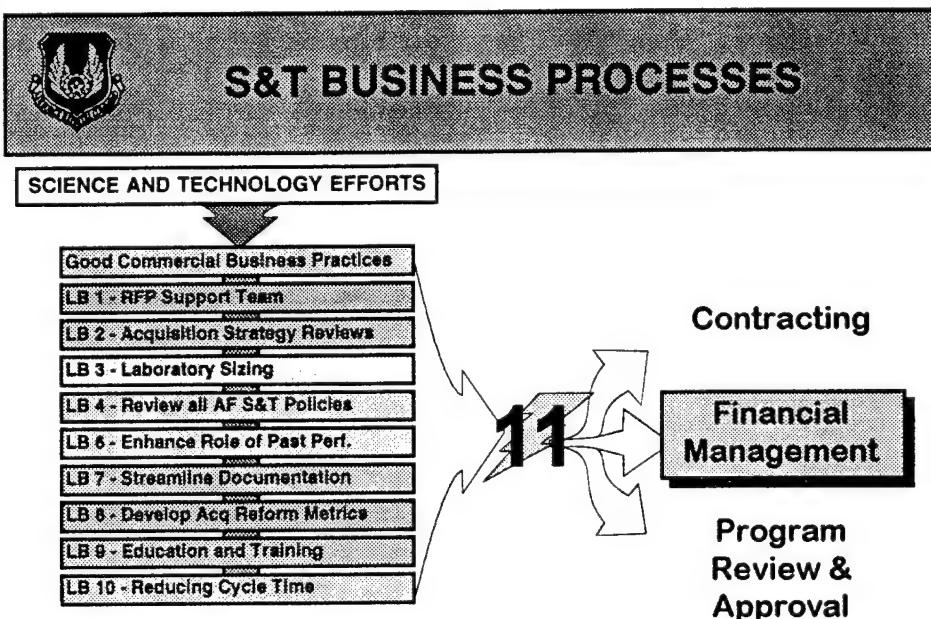
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LB 11.3 EXPAND USE OF ASSISTANCE INSTRUMENTS

- Reasons for AF not using 10 U.S.C. 2371 OT authority
 - Requires 50/50 cost share to extent practicable
 - Used only when standard contract, grant, or cooperative agreement is not feasible
 - Requires HQ AFMC/PK approval for use
- Reasons for AF not using 845-type authority for prototypes
 - Not authorized

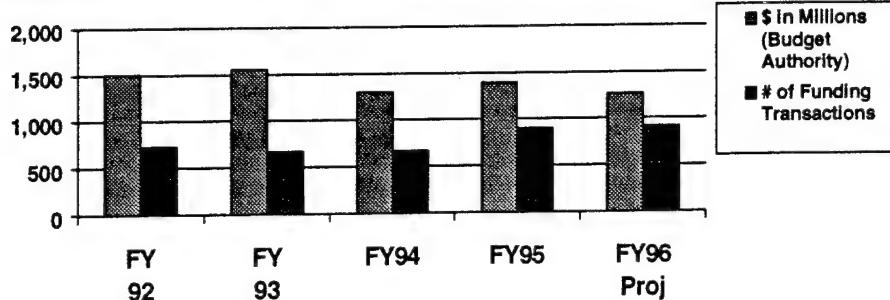
91886 - 25



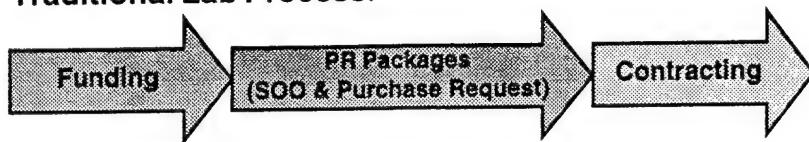
91886 - 26



WHERE WE ARE



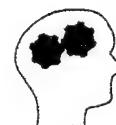
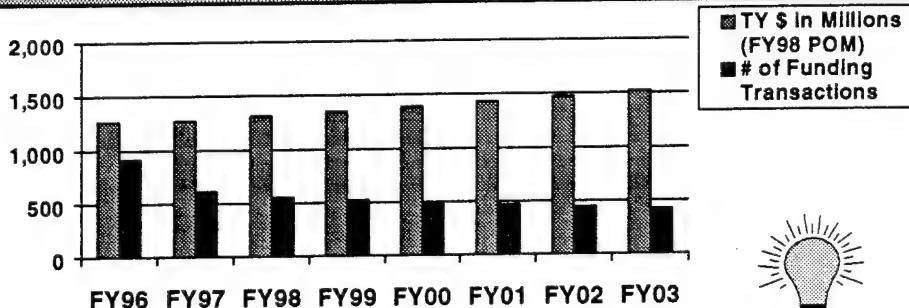
Traditional Lab Process:



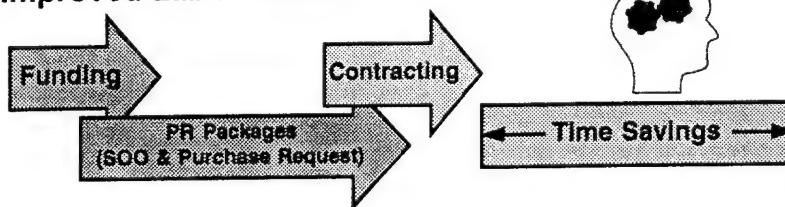
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WHERE WE WANT TO BE



Improved Lab Process:



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S&T BUSINESS PROCESSES

SCIENCE AND TECHNOLOGY EFFORTS

- Good Commercial Business Practices
- LB 1 - RFP Support Team
- LB 2 - Acquisition Strategy Reviews
- LB 3 - Laboratory Sizing
- LB 4 - Review all AF S&T Policies
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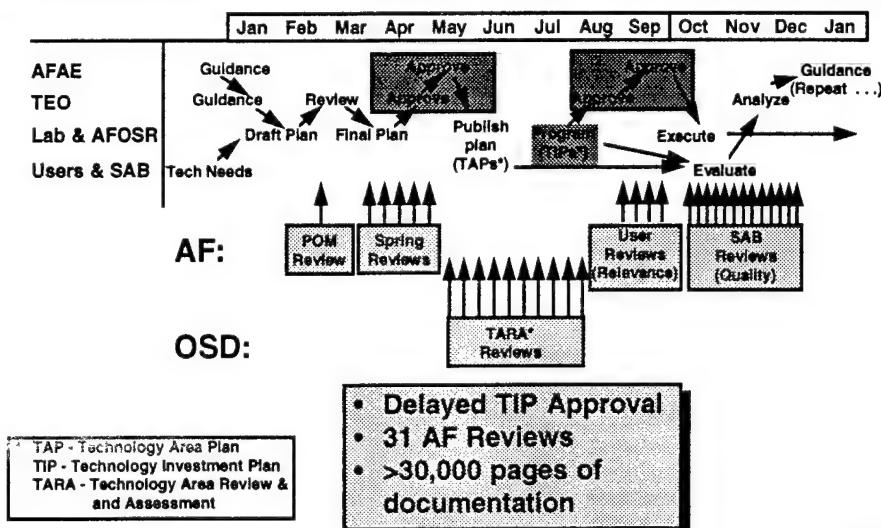
Program Review & Approval

11

01094-29



PROGRAM REVIEW AND APPROVAL PROCESS



01094-30



LIGHTNING BOLT #11 ASSESSMENT

	Better	Faster	Cheaper
11.1	✓	✓	✗
11.2	✓	✓	✓
11.3	✓		
11.4	✓	✓	✓
11.5	✓	✓	✗
11.6	✗	✓	
11.7	✓	✓	
11.8		✓	
11.9	✓	✓	✓
11.10		✓	✓

✓ = Direct Benefit
✗ = Indirect Benefit

Efficiency = "Better, faster, cheaper"

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OVERVIEW

- IR&D activities
- Acquisition Reform activities
 - Lightning Bolt # 11 - Improving laboratory business processes
- Summary

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IMPROVING S&T BUSINESS PROCESSES SUMMARY

- CD-ROM matching effort has huge potential
 - Can save the Air Force hundreds of millions of dollars annually and accelerate technology transition
- S&T BBS is leading DoD in the effort to provide industry with S&T planning documents
 - Effort promotes cooperation and helps industry target their IR&D funds to solve current and future Air Force requirements
- Lightning Bolt #11 = fundamental changes
 - Common processes across labs
 - Better, faster, cheaper



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BIOGRAPHY

MR. TIMOTHY L. DUES

Mr. Timothy L. Dues is the Chief of Plans and Programs within the Directorate of Science and Technology, Headquarters Air Force Materiel Command, Wright-Patterson Air Force Base, Ohio. He is responsible for integrated science and technology program and budget planning across the command, including the four laboratories, the Air Force Office of Scientific Research (AFOSR), the product centers and depots. He leads the Air Force science and technology (S&T) planning and financial community in interaction with Office of the Secretary of Defense (OSD), the other services, and industry. As the Air Force Materiel Command advances and utilizes critical technology development for technological superiority, Mr. Dues provides the fiscal and technical guidance for technology development and resources necessary to meet Air Force war fighting need.

In 1978, Mr. Dues began his career with the Air Force as a fuels and lubrication technician in the Air Force Wright Aeronautical Laboratories, Aero Propulsion Laboratory. In 1981, he was selected to lead the fuels analytical chemistry in-house laboratory looking at the chemical composition of alternative fuels and specification compliance during a critical fuel shortage for the country and the Air Force. During 1983-1987, he led the Air Force fuels team through the alternative fuels development and high thermal stability fuel advances. In 1987, Mr. Dues was selected for a Headquarters Air Force Systems Command (AFSC) assignment as the Aero Propulsion and Power Program Element Monitor in the Aeromechanics Division of the Science and Technology Directorate, Andrews Air Force Base, Maryland. As PEM for Aeropropulsion, he promoted and won recognition for the Integrated High Performance Turbine Engine Technology (IHPTET) program as a model for government/industry technology planning. He was appointed Chief of Technology Plans in 1990 and has served in this capacity in AFSC as well as through the merger of Air Force Systems Command and Air Force Logistics Command into Air Force Materiel Command at Wright-Patterson Air Force Base, Ohio. In March 1995, Mr. Dues assumed his present position with responsibility for fiscal as well as technical guidance for the Air Force Science and Technology program.

As the Chief, Plans and Programs Division, Mr. Dues is highly respected and is invited regularly by OSD, Army, Navy, and other government agencies to present the Air Force Technology Planning Process, its execution and associated performance standards. He assists the AFIT School of Acquisition Logistics, graduate level School of Engineering and Defense Systems Management College by lecturing on planning process development and its measurement. He is a senior member of the American Chemical Society, American Institute of Chemical Engineers, American Society of Testing and Materials, and the American Council for Science and Technology Policy.

Mr. Dues is unmarried and currently resides in Centerville, Ohio.

EDUCATION:

1974 Bachelor of Science degree in biology/chemistry, University of Dayton
1983 Bachelor of Science degree in chemical engineering, University of Dayton
1992 Defense Systems Management College Program Management Course
1991 Air Force Institute of Technology System Acquisition and Acquisition Logistics course
1993 Executive Excellence Development Course (Carnegie-Mellon University)
1993 Office of Personnel Management Executive Development Seminar for Science and Technology Policy
1996 Master of Science in Public Administration, Central Michigan University

ASSIGNMENTS:

1. Aug 78 - Jun 81, Chemical Engineering Technician, Wright Aeronautical Laboratory, Wright-Patterson AFB OH
2. Jun 91 - Apr 83, Chemist, Wright Aeronautical Laboratory, Wright-Patterson AFB OH
3. Apr 83 - Mar 87, Chemical Engineer, Wright Aeronautical Laboratory, Wright-Patterson AFB OH
4. Mar 87 - Aug 89, PEM/SYSTO, PE62203F/PE 63216F, Aerospace Propulsion, HQ AFSC, Andrews AFB MD
5. Aug 89 - May 92, Chief, Plans Division, Directorate of Plans & Programs, DCS, Technology and Requirements Planning, HQ AFSC, Andrews AFB MD
6. May 92 - Jul 93, Chief, Plans Division, Directorate of Plans & Programs, DCS, Science and Technology, HQ AFMC, Wright-Patterson AFB OH
7. Jul 93 - Mar 95, Chief, Plans Division, Directorate of Science and Technology, HQ AFMC, Wright-Patterson AFB OH
8. Mar 95 - Present, Chief, Plans and Programs Division, Directorate of Science and Technology, HQ AFMC, Wright-Patterson AFB OH

PROFESSIONAL CERTIFICATION:

Acquisition Professional Development Program Certification:
Systems Planning, Research, Development, and Engineering, Level III
Program Management, Level III

MAJOR AWARDS:

AFSC Senior Level Supervisor of the Year - 91
Special Act of Civilian Service Award - 90
Aero Propulsion Director's Citation for Excellence - 89
Aero Propulsion Director's Citation for Program Management - 87
Performance Management Recognition System Awards - 88, 89, 90, 91, 92, 93, 94
Sustained Superior Performance Award - 84, 85, 86
Superior/Excellent Performance Ratings - 79, 80, 81, 83
Notable Achievement Award for Scientific Excellence - 84



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INDUSTRY PERSPECTIVE ON IR&D

BY

FRANK J. LYON

CHAIRMAN

MULTI-ASSOCIATION TASK GROUP ON IR&D/B&P

JULY 10, 1996

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OUTLINE

- **WHAT IS THE MULTI-ASSOCIATION TASK GROUP ON IR&D?**
- **EVOLUTION OF GOVERNMENT RESTRICTIONS ON IR&D**
- **CURRENT IR&D COMMUNICATION PROCESS**

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MULTI-ASSOCIATION TASK GROUP ON IR&D/B&P

- ESTABLISHED AND SPONSORED BY
 - AEROSPACE INDUSTRIES ASSOCIATION (AIA)
 - ELECTRONIC INDUSTRIES ASSOCIATION (EIA)
 - NATIONAL SECURITY INDUSTRIAL ASSOCIATION (NSIA)
- TO ADDRESS THE IR&D/B&P INTERESTS OF THE U.S. AEROSPACE AND DEFENSE INDUSTRY BY —
 - PROVIDING A FORUM FOR THE COMMUNICATION AND DISCUSSION OF IR&D/B&P POLICY ISSUES, AND
 - SERVING AS THE FOCAL POINT FOR COOPERATIVE EFFORTS BETWEEN INDUSTRY AND THE GOVERNMENT ON RELATED MATTERS

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EVOLUTION OF GOVERNMENT RESTRICTIONS ON IR&D/B&P

(MAJOR MILESTONES)

- 1942 NAVY FIRST MENTIONED IR&D AND ALLOWED ITS COST ALLOCATION TO GOVERNMENT CONTRACTS.
- 1949 ASPR PUBLISHED. ALLOWED IR&D IN OVERHEAD ON COST-TYPE CONTRACTS UNDER LIMITED CONDITIONS.
- 1959 CONCEPT OF CEILINGS ON IR&D WAS INTRODUCED IN ASPR.
- 1960 DOD ESTABLISHED PROCEDURES FOR REVIEWING IR&D PROGRAMS AND NEGOTIATING ADVANCE AGREEMENTS.
- 1970 CONGRESS ENACTED PUBLIC LAW 91-441, SECTION 203, REQUIRING —
 - DETERMINATION OF PMR TO LIMIT ALLOWABILITY
 - TECHNICAL EVALUATION OF COMPANY IR&D PLANS TO SUPPORT ADVANCE AGREEMENT NEGOTIATIONS
 - ADVANCE AGREEMENTS ON IR&D AND B&P CEILINGS.

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(MAJOR IR&D/B&P MILESTONES CONTINUED)

- 1983 HOUSE APPROPRIATIONS COMMITTEE INITIATED REQUIREMENT FOR ANNUAL CONGRESSIONAL APPROVAL OF DOD IR&D/B&P CEILING BUDGET.
- 1984 CONTRACTORS REQUIRED TO SUBMIT ANNUAL UNIVERSITY INTERACTION REPORTS AND SPECIAL INFORMATION ON WSSR.
- 1985 CONGRESS REQUESTED AN INDEPENDENT ASSESSMENT OF THE IR&D/B&P PROGRAM. (DOD SELECTED RAND)
- 1987 REQUIREMENT FOR UNIVERSITY INTERACTION REPORTS AND WSSR INFORMATION DELETED.
- 1988 CONGRESS DISCONTINUED PRACTICE OF SETTING CAPS ON IR&D/B&P CEILINGS. ANNUAL "IR&D/B&P BUDGETS" ESTABLISHED BY DOD.
- 1988 JOINT INDUSTRY/DOD WORKING GROUP FORMED TO STREAMLINE IR&D/B&P ADMINISTRATION PROCESS.
- 1988 IR&D/B&P BUDGET CUTS PROPOSED BY DAVID CHU. REJECTED
-89 WITH STRONG SUPPORT FOR IR&D BY CARLUCCI AND DON ATWOOD.
- 1990 AIA BEGAN INITIATIVE TO ACHIEVE FULL IR&D/B&P COST ALLOWABILITY.

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(MAJOR IR&D/B&P MILESTONES CONTINUED)

- 1990 CONGRESS ENACTED PUBLIC LAW 101-510, SECTION 824, REPEALING PUBLIC LAW 91-441, SECTION 203.
- SUBSTANTIALLY BROADENED CONCEPT OF PMR
 - INCREASED ADVANCE AGREEMENT THRESHOLD TO \$7M/700K
 - DELETED REQUIREMENT FOR IR&D TECHNICAL PLANS AND EVALUATIONS
- 1991 CONGRESS ENACTED P.L. 102-190, SECTION 802.
- REQUIRED 100% ALLOWABILITY OF REASONABLE AND ALLOCABLE IR&D/B&P COSTS HAVING POTENTIAL DOD INTEREST, AFTER A 3-YEAR TRANSITION PERIOD
 - ENCOURAGED IMPLEMENTATION OF REGULAR AND REASONABLE COMMUNICATION METHODS
 - FROM DOD TO CONTRACTORS COVERING FUTURE NEEDS
 - FROM CONTRACTORS TO DOD COVERING PROGRESS ON IR&D PROGRAMS
- 1992 "GUIDELINES FOR CONTRACTOR COMMUNICATION OF IR&D TECHNICAL INFORMATION" WAS PUBLISHED.
- 1995 "IR&D DATABASE CONTRIBUTOR'S GUIDE" WAS PUBLISHED BY DTIC.

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POTENTIAL INTEREST TO DoD

ALLOWABLE IR&D/B&P COSTS ARE LIMITED TO PROJECTS WHICH ARE OF POTENTIAL INTEREST TO DoD, INCLUDING ACTIVITIES INTENDED TO ACCOMPLISH ANY OF THE FOLLOWING:

1. ENABLE SUPERIOR PERFORMANCE OF FUTURE U.S. WEAPON SYSTEMS AND COMPONENTS;
2. REDUCE ACQUISITION AND LIFE-CYCLE COSTS OF MILITARY SYSTEMS;
3. STRENGTHEN THE U.S. DEFENSE INDUSTRIAL AND TECHNOLOGY BASE;
4. ENHANCE THE INDUSTRIAL COMPETITIVENESS OF THE U.S.;
5. PROMOTE THE DEVELOPMENT OF TECHNOLOGIES IDENTIFIED AS CRITICAL UNDER 10 U.S.C. 2522;
6. INCREASE THE DEVELOPMENT AND PROMOTION OF EFFICIENT AND EFFECTIVE APPLICATIONS OF DUAL-USE TECHNOLOGIES;
7. PROVIDE EFFICIENT AND EFFECTIVE TECHNOLOGIES FOR ACHIEVING ENVIRONMENTAL BENEFITS ...

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CURRENT GOVERNMENT POLICY ON IR&D/B&P

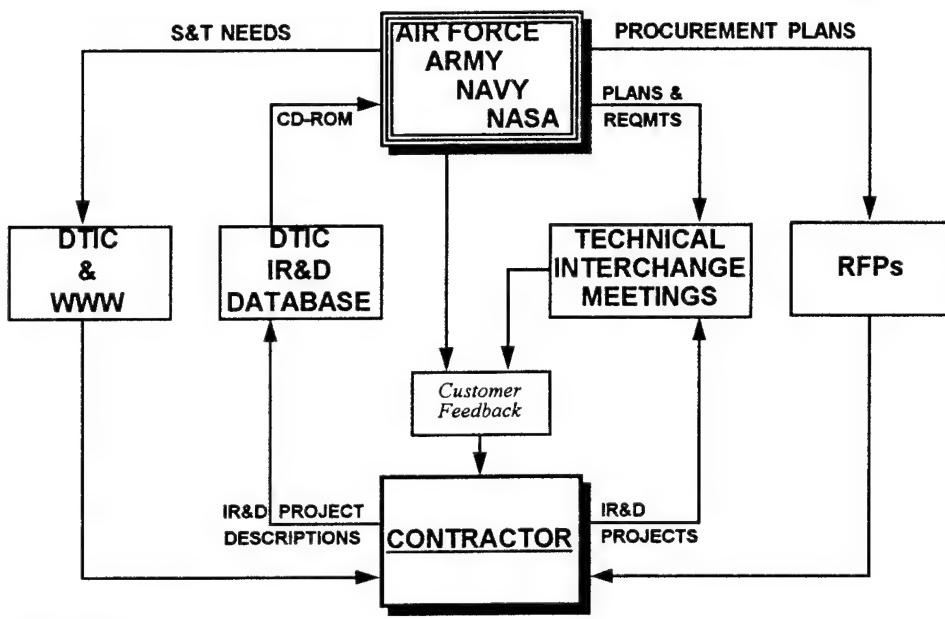
- NO CEILINGS ON IR&D/B&P COSTS
 - OVERHEAD COSTS LIMITED BY REASONABILITY AND ALLOCABILITY
- NO VOLUMINOUS ANNUAL REPORTS AND TECHNICAL RATINGS ON IR&D PROJECTS
 - ONLY BRIEF PROJECT DESCRIPTIONS FOR COMMUNICATION PURPOSES



REGULATIONS ENCOURAGE COMMUNICATION AND COOPERATION

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COMMUNICATION PROCESSES



IR&D PROJECT DESCRIPTIONS

- BRIEF SUMMARY OF PROJECT NEED, OBJECTIVE, APPROACH AND PROGRESS
- OPEN STYLE NARRATIVE ENCOURAGES USE OF EXISTING DESCRIPTIONS
- STANDARD DATA BLOCK ENABLES INTELLIGENT SEARCHES BY GOVERNMENT USERS
- ELECTRONIC SUBMISSION USING MICROSOFT WORD OR WORD PERFECT (WINDOWS OR MAC) PREFERRED
- GRAPHICS AND TABLES ARE ACCEPTABLE
- AVERAGE PROJECT DESCRIPTION SIZE SHOULD BE \leq 200 (500) KILOBYTES OF UNCOMPRESSED DATA AND \leq 5 PAGES
- DETAILS DESCRIBED IN DTIC IR&D CONTRIBUTORS GUIDE, 1 DECEMBER 1995

TECHNICAL INTERCHANGE MEETINGS

- TO FACILITATE DISCUSSIONS BETWEEN GOVERNMENT AND COMPANY TECHNICAL MANAGERS ON FOCUSED SUBJECTS OF MUTUAL INTEREST
 - SPECIFIC MISSION/SYSTEM REQUIREMENTS AND PRODUCT DEVELOPMENT PLANS
 - SELECTED TECHNOLOGIES
- IMMEDIATE FEEDBACK
- FREQUENCY AND LOCATION OPTIONAL

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CONCLUSION

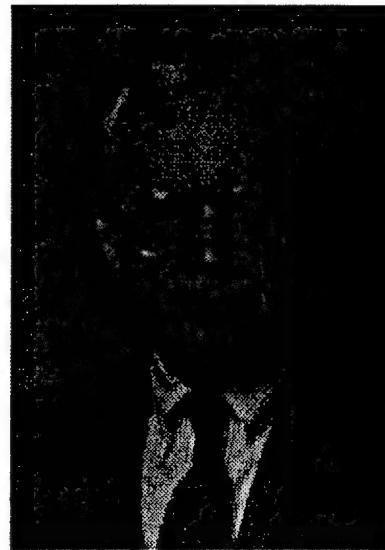
- THE CURRENT IR&D PROCESS IS EXACTLY WHAT INDUSTRY ASKED FOR
 - IT'S SIMPLE
 - IT'S NATURAL
 - IT'S NOT RESTRICTIVE
- CONTRACTOR PARTICIPATION IS EXPECTED

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FRANK J. LYON

CHAIRMAN OF THE AEROSPACE AND DEFENSE INDUSTRY'S MULTI-ASSOCIATION TASK GROUP ON INDEPENDENT RESEARCH & DEVELOPMENT (IR&D)

Frank J. Lyon is the Corporate Director of Technical Resources, reporting to the Senior Vice President of Research, Engineering & Operations at Rockwell's corporate offices, a position Mr. Lyon has held since 1974. In this capacity, Mr. Lyon is responsible for improving the technical quality and effectiveness of company discretionary engineering activities. This involves management of university relations, management of company technical panels, engineering strategic planning guidance, as well as executive planning and administration of the company's independent research and development (IR&D) and bid and proposal (B&P) activities. Prior to assuming this position, he served as a member of the corporate research and engineering technical staff for eight years.



Prior to joining the corporate staff in 1966, Mr. Lyon held positions of Chief, Aero-Thermodynamics Department and Senior Project Engineer of Advanced Systems at the company's Space Division in Downey, California. Earlier, he was Supervisor of the Aero-Thermodynamics Development Group at the Columbus Division in Columbus, Ohio.

Prior to joining Rockwell International in 1957, Mr. Lyon spent two years on active duty with the U.S. Air Force in the WADC Aircraft Laboratory at Dayton, Ohio, where he served as a project engineer on applied research studies in heat transfer and aircraft structural dynamics associated with the nuclear weapon delivery capability and vulnerability of various U.S. aircraft and missiles. Mr. Lyon received BS and MS degrees in aeronautical engineering from the University of Minnesota where he was a National Science Foundation post-graduate fellow and a member of Tau Beta Pi.

He has taught numerous courses in aero-thermodynamics, heat transfer and engineering management within Rockwell. He is an Associate Fellow of the American Institute of Aeronautics & Astronautics (AIAA), and has served as a member of the AIAA Technical Committee on Management. He currently is chairman of the aerospace and defense industry's Multi-Association Task Group on IR&D. He is also a member of the American Society for Engineering Education (ASEE) Corporate Roundtable.

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AIR FORCE SCIENCE AND TECHNOLOGY
INDUSTRY SURVEY RESULTS
1996



10 Jul 96



IR&D SURVEY TO INDUSTRY
- 1996 RESULTS -

- HQ AFMC/ST solicited industry feedback on satisfaction with AF IR&D coordination and communication process
 - 325 company centers were surveyed
 - represents 123 aerospace companies
 - 84 centers (25.8%) representing 54 companies responded
- Survey
 - Questions with "1-to-6" response
 - Narrative comments
 - One survey form per company center

IR&D - 2



IR&D SURVEY TO INDUSTRY - 1996 RESULTS -

- 73% of the respondents were aware of Air Force laboratory WWW sites
 - 65% had actually accessed a site
- 59% of the respondents were aware of the controlled S&T WWW site
 - 40% had accessed the site

IR&D - 3



IR&D SURVEY TO INDUSTRY - 1996 RESULTS -

Q. Does your company/organization currently have or plan to submit IR&D projects to DTIC for inclusion on DTIC's IR&D database?

Positive response = 76 percent

Yes: 64

No: 15

NA: 5

IR&D - 4



IR&D SURVEY TO INDUSTRY - 1996 RESULTS -

Reasons companies do not plan to submit IR&D projects to DTIC

- Difficult to use and will not accept graphics
 - There is not much incentive to submit anymore
 - We were not aware of the DTIC IR&D database
 - Against company policy
-
- Concern regarding security of database in competitive environment

(Represents 1/3 responses)

IR&D - 5



IR&D SURVEY TO INDUSTRY - Areas of Interest to Industry -

Top Seven Technology Areas of Interest to Industry (in rank order)

- C3I
- Avionics
- Advanced Weapons
- Manufacturing
- Space & Missiles
- Materials
- Human Systems

IR&D - 6



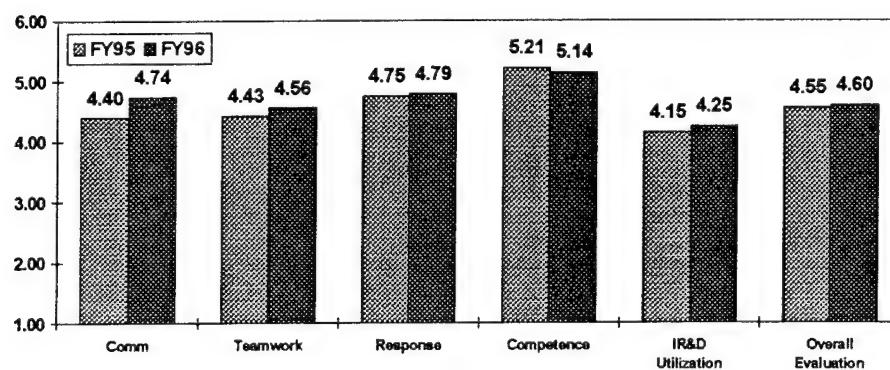
IR&D SURVEY TO INDUSTRY - Information Important to Industry -

<u>INFORMATION REQUESTED</u>	<u># Responses</u>	<u>Cum Val</u>
Technology Road Maps	40	312
Technical Area Plans	38	296
Mission Need Statements	29	199
Point of Contact (Technical, System, Mission)	32	195
Technology Report Synopsis of past AF R&D	19	189
Research & Development Descriptive Summaries	25	148
Operational Requirements	20	116
Current Laboratory Research Efforts	19	110
IR&D Focal Points	14	76
Procurement Forecasts - Long Range	8	74
AF Revolutionary S&T Planning	15	73
RFPs/RFIs	8	66
Developmental Plans	12	58
S&T Overview Process	10	46

IR&D - 7



IR&D SURVEY TO INDUSTRY - S&T Communication Assessment -



IR&D - 8

Army IR&D Program Priorities and Processes

**DoD/Industry R&D Conference
Wright-Patterson AFB
July 10-11, 1996**



**Bryan Johnson
Army Research Laboratory**

> Cover

Independent Research & Development Program (IR&D)

Mission

Communication with Industry

Army R&D Plans and Priorities

Summary

Mission of the Army IR&D Program



*Encourage Industry to engage in IR&D
activities of interest to the US Army*

480

Communication with Industry

Traditional:

- IR&D Technical Interchange Meetings (TIMs)
- Match Army needs with industry capabilities using CD-ROM
- Engineer/Engineer informal discussions

New Initiatives:

- Senior executive IR&D Meetings
- Integrated Product Team - AMC, SARD, DCSOPS, TRADOC, PEO/PM, Industry
- Use of the WWW

Where to Find Army Points of Contact

WWW address: <http://www.arl.mil/tto/>

- Independent Research and Development (IR&D) points of contact
- Domestic Technology Transfer Offices of Research and Technology Applications (ORTAs)

IR&D Technical Interchange Meetings (TIMs) in FY96

Army Research Lab (ARL) at
Aberdeen Proving Ground, MD
POC: Mike Rausa, (410) 278-5028

Thiokol
Hughes Research Labs

Missile Command
POC: Kathy Herring, (205)876-4684

Lockheed Martin
Atlantic Research

Armament Research, Development
and Engineering Center
POC: Jim Greenfield, (201)724-6048

Alliant TechSystems
Thiokol

NATICK Research, Development
and Engineering Center
POC: Frank Sherman, (508)233-4687

Lockheed Martin
Boeing Company
Draper Labs
Hoechst Celanese

Communications-Electronics Command
POC: Praveen Prasad, (908)427-3892

Litton Data Systems
ITT

Lockheed Martin Electronics (CECOM)
Lockheed Martin Electronics (Orlando)
Allied Signal
Hughes Aircraft
Northrop Grumman
Harris

Meetings with Senior Industry IR&D Executives

Purpose:

- To clearly enunciate Army technology needs to Industry
IR&D Managers

Format:

- Precedent set by AMC CEO meetings ~~but emphasis on technology~~
- Includes executive briefings and one-on-one discussions
- Invitations to Army contractors
- Total of 8-10 firms at each meeting; two or three meetings annually
- TRADOC and other Commands and Army staff participate

Army R&D Priorities

Army Science and Technology Master Plan (ASTMP)

**Department of Army contact for hard copy:
Ms. Sharon Vanucci; (703) 614-7298**

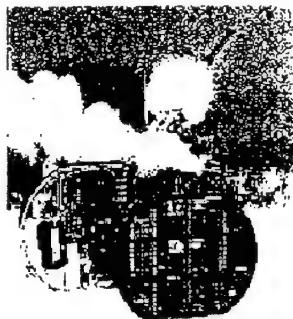
**Army R&D information on the Internet:
<http://www.sarda.army.mil>**

Army Operational Plans & Priorities



TRADOC homepage
<http://www-tradoc.army.mil/battle.labs/index.htm>

PATRIOT



Participating Contractors:

RAYTHEON	Martin-Marietta
Morton-Thiokol	Northrop
Litton	Kaiser/Lucas

IR&D Payoff

Basic Technology Established

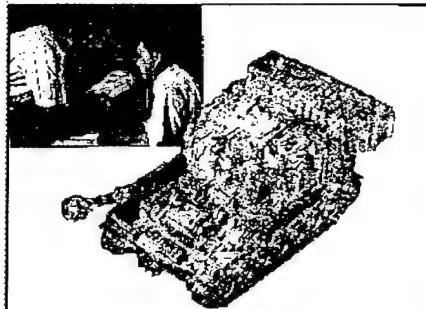
- Ferrite materials
- Ferrite base shakers
- Space fed phased array

Basic ATM Capability Established

- Missile and radar sensitivity and sub-clutter visibility enhancements
- Warhead redesign
- Correlation subsystem clutter canceler
- Fuze signal processing
- Software Upgrades
- Warhead redesign
- Microelectronics

CRUSADER

**ADVANCED FIELD ARTILLERY
SYSTEM CANNON (AFAS-C)**



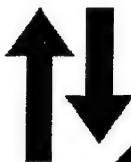
Participating Contractors:

FMC	Magnavox
Wegmann	GE
Rheinmetall	Vector
DELCO	Grumman

IR&D Payoff

- Technical/Tactical Fire Control
- MIMIC Technology
- Liquid Propellant
- Regenerative LP Gun
- Polymer Reinforced Structures
- Ammunition Handling Technology
- Man/Machine Interface Technology

Army IR&D



Value to Industry

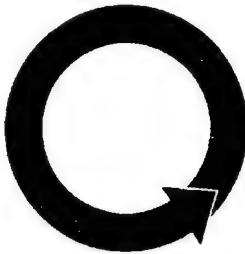
- Positions company for future contracts
- Maintains robust industrial base

Value to Army

- Focus Industry IR&D to meet Army future needs
- Avoids duplication of R&D efforts

**\$2 Billion
Annual
Expenditure
by Industry**

Navy IR&D Program Initiatives



Presented to
Strategic Information
Management Conference
Wright-Patterson AFB

10 July 1996

Katherine Drew
Office of Naval Research



Navy IR&D Program Agenda

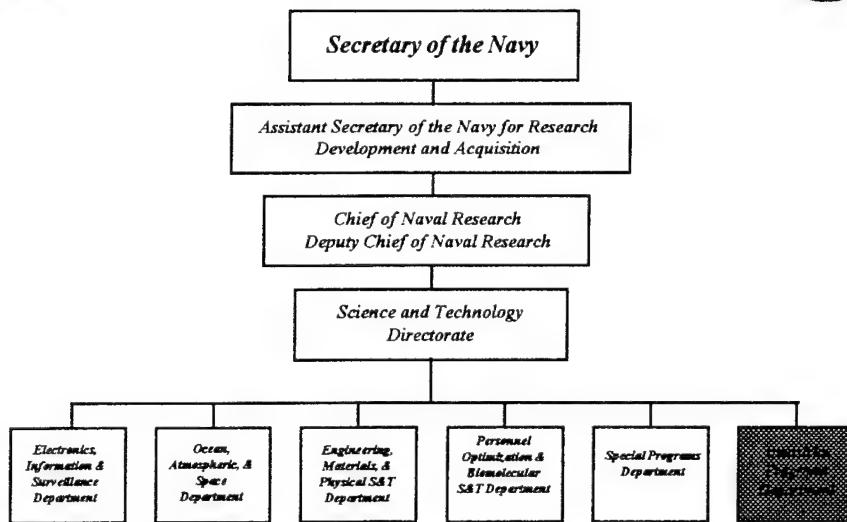


- l Navy R&D Organization***
- l Navy IR&D Program Objectives***
- l Navy IR&D Communications Initiatives***
- l Summary***



Office of Naval Research 1996

<http://www.onr.navy.mil/>



Office of Naval Research

<http://www.onr.navy.mil/>



Office of Naval Research

The Science and Technology Office of the Navy



Anniversary of ONR

The Office of Naval Research (ONR) is celebrating its 50th anniversary this year. When established in 1946, ONR was the first federal agency with the mission of developing, promoting, planning, advancing and overseeing naval research. Advances in scientific and technical advances in the development new technologies for military applications plays an important role in protecting the freedom and independence of the United States and our allies around the world. The technological and military edge that our naval forces enjoy today is the direct result of the past 50 years of ONR investments in science and technology just as future successes will depend on ONR's continuing commitment to science and technology.

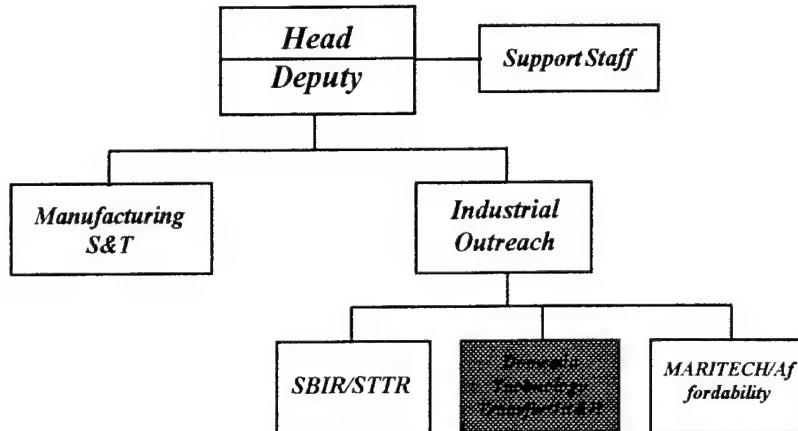
Address: Public Affairs Office, Office of Naval Research, Defense Dept., Seven Dec., 200 North Quincy Street, Arlington, VA 22217-5660.
Email: ascanon@onr.navy.mil

Date: Thursday, April 11, 1996 12:00 PM

Printer: www.onr.navy.mil/ 2700



Industrial Programs Department



drewk@onrhq.onr.navy.mil

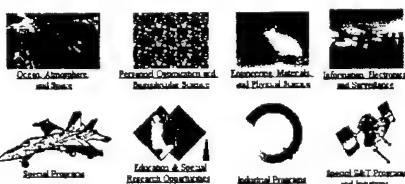


Office of Naval Research
Science and Technology Departments and Programs

The Office of Naval Research

Science & Technology Departments and Programs

ONR's mission is to maintain a close relationship with the international research and development community to support long-range research, foster discovery, nurture future generations of researchers, produce new technologies that meet future need requirements, and develop systems of knowledge transfer by building relationships in the future Needs and Markets Corps.



www.3comsecurity.com



Navy IR&D Program Objectives



- ✓ **Use IR&D investments for:**
 - More affordable Navy systems
 - Improved Fleet near-term operations capabilities
 - Reduced Fleet operations' costs
 - Enhanced Navy S&T base



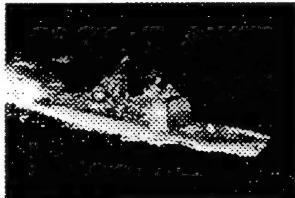
Navy IR&D Program Enhanced Affordability of Systems



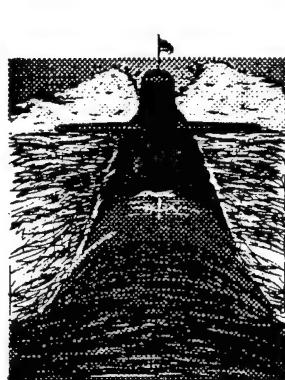
- ✓ **Focus on technology needs of major acquisition programs**
 - NSSN (Next Generation SSN)
 - SC-21 (21st Century Surface Combatant)
 - CVX (Next Generation Aircraft Carrier)
 - LHX (Next Generation Amphibious Ship)
 - JSF (Joint Strike Fighter)



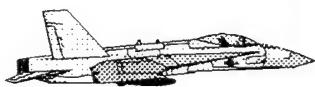
Major Acquisition Programs



SC-21



NSSN



JSF



CVX



LHX



Navy IR&D Program Focused Tech Exchange Meetings (TIMS)



- l Initiated by:
 - System Commands (SYSCOMs)
 - Program Executive Offices (PEOs)
 - Direct Reporting Program Managers (DRPMs)
- l Focus on technology needs of major acquisition programs for enhanced affordability



Navy IR&D Program
Improved Fleet Near Term Operational Capabilities



- Fleet operational needs defined
 - Command Technology Issues (CTIs)
 - Statements of Fleet problems to be solved by S&T
 - Near term operational capabilities enhanced
 - Technology insertion at subsystem unit/component level



Navy IR&D Program
Reduced Fleet Operations Costs



- Reduced operations/maintenance
 - Current maintenance issues resolved through engineering applications/ improved process control



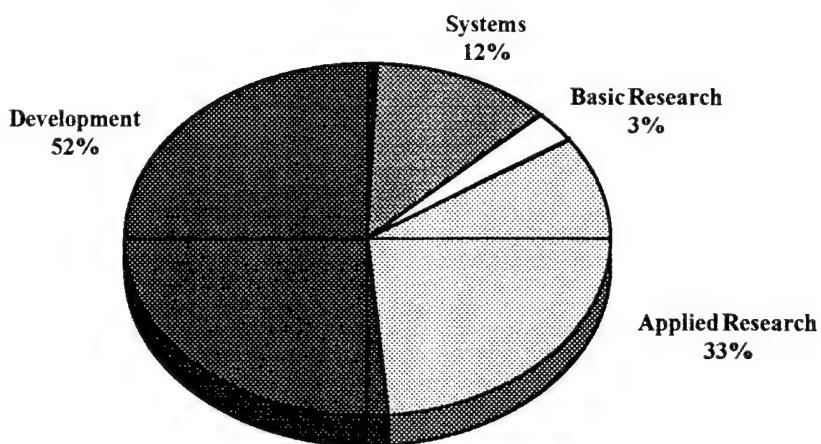
Navy IR&D Program
Enhanced Navy S&T Base



- ✓ Minimize unplanned duplication/overlap of S&T efforts (more bang for R&D buck)
- ✓ Navy study ongoing to answer question of what basic research is being done by industry in:
 - Ocean Science
 - Information Science
 - Materials
 - Fuels
 - Explosives
 - Guidance
 - Navigation & Control

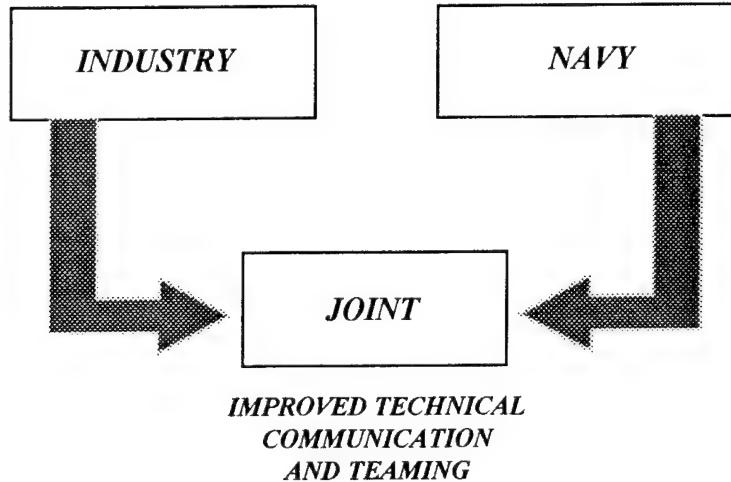


Navy IR&D Program
1995 CD-ROM





Navy IR&D Program Communications Initiatives



Navy IR&D Program Communications Initiatives



- ✓ Outreach to industry to identify their communications issues
- ✓ Focused Technical Interchange Meetings
- ✓ Industry/Navy Meetings
 - Industry/Major Program Workshops
 - Policy Round Table discussions (Proposed)
 - Executive Meetings for definition of long term R&D needs (Proposed)
- ✓ Expanded information for industry homepage



Navy IR&D Program Industry Outreach



- ✓ Meet with senior industry executives
 - Presidents, Division General Managers, Vice Presidents of Engineering, Directors of Research and Technology, Managers of IR&D
- ✓ Meet with industry segments
 - Shipbuilding, Aerospace, Electronics
- ✓ Develop insight into company
 - Future vision, planning, customer communication, IR&D issues



Navy IR&D Program Industry Communication Issues



- ✓ DoD Vision
 - Reliable long range DoD plans
- ✓ Operational Needs
 - Better information on user requirements
- ✓ IR&D Communication
 - More feedback from Navy on IR&D



Navy Scheduled TIMS in FY96



<u>Company</u>	<u>Date</u>	<u>Coordinating Organization</u>
Boeing	7-9 Nov 95	NAVSEA
Johns Hopkins/APL	30 Nov 95	ONR
Lockheed Sanders	19-20 Mar 96	SPAWAR
Boeing DSG	30 Apr - 1 May 96	SPAWAR
Loral Defense Systems - Arkon	6-7 May 96	NAVSEA
Loral Vought Systems	21-22 May 96	NAVSEA
Westinghouse STC	6-7 Aug 96	NAVSEA
Lockheed Martin	TBA	NAVSEA
Harris	TBA	SPAWAR
Loral Defense Systems - Arizona	TBA	NAVSEA



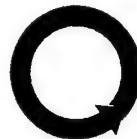
Navy IR&D Program Industry/Major Program Workshops



- ✓ **Facilitate Navy/industry technology connections and teaming**
 - Prime, Subcontractor, Laboratory, University
 - Review program technology needs
 - Identify potential technology sources
 - Encourage technical exchange and teaming



Navy IR&D Program
Policy Round Table Discussions (Proposed)



- Meetings with senior Navy and industry executives to discuss IR&D policy issues and recommend policy improvements**



Navy IR&D Program
Industry IR&D Executives Meeting (Proposed)



- Review future Navy technology needs and provide an environment for Navy/industry and industry/industry interaction**
 - Senior executives of Navy contractors**
 - Executive summary of future Navy needs from SYSCOMs/PEOs/DRPMs**
 - Opportunity for formal discussion**



NARDIC HOMEPAGE ACCESS

<http://nardic.nrl.navy.mil>



- ✓ DoD contractor or potential contractor
- ✓ Citizens representing U.S. owned companies
- ✓ Personnel and facility clearance
- ✓ DTIC registered contract (DD 1540)
- ✓ Registration package from DTIC
(703-767-8273)
- ✓ Criteria met → Contractor receives
 - LOGIN
 - PASSWORD



Navy IR&D Program Information Available from
NARDIC



- ✓ Warfare Area Master Plans
- ✓ Navy Doctrine Publications (NDP)
- ✓ R2 (budget) exhibits
- ✓ Science and Technology Requirements Guidance (STRG)
- ✓ Command Technology Issues (CTIs)
- ✓ Mission Needs Statements (MNS)
- ✓ Operational Requirements Documents (ORDs)
- ✓ List of Acronyms
- ✓ NARDIC Quarterly Newsletter



Navy IR&D Program Summary



- We're working to improve communication
 - SYSCOMs, PEOs, DRPMs technology needs
 - Fleet operational and maintenance issues
 - Industry issues
 - Joint Navy/industry workshops and round tables
 - Information for industry homepage – Navy Acquisition R&D Information Center (NARDIC)

The Boeing Company

Preparing Error-Free IR&D Project Reports

Alan MacArthur

The Boeing Company

Objectives

Enable DTIC to:

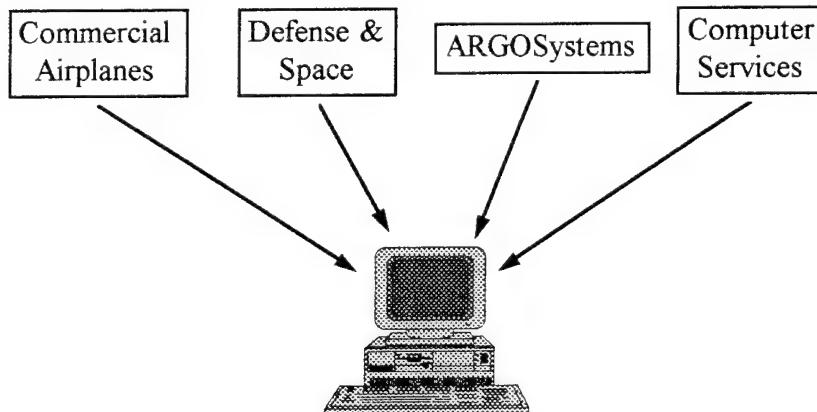
- Quickly process all data
- Distribute data to Services ASAP

The Boeing Company

Establish contact with DTIC --
Good People!

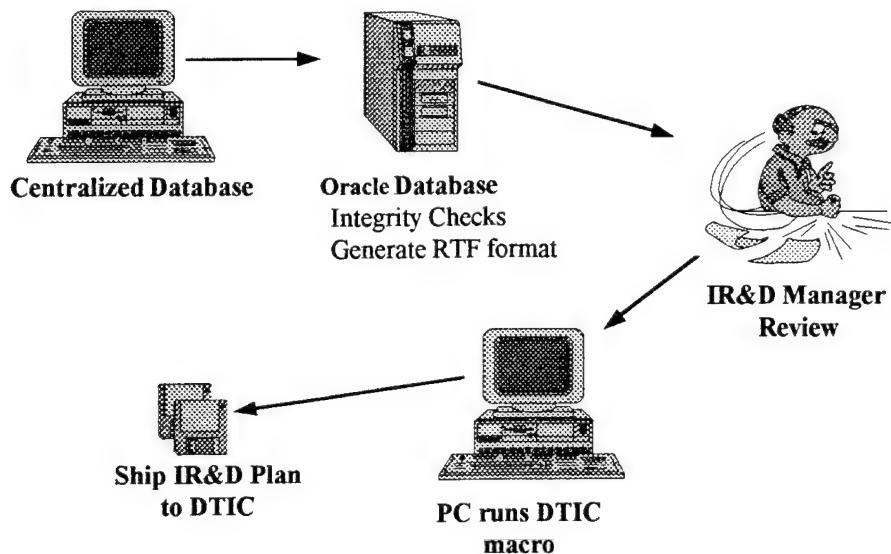
Frank Scott
Chief,
Programs Management Branch
703-767-8038

The Boeing Company



Centralized Data Collection

The Boeing Company



The Boeing Company

Microsoft rtf Specification V1.4

<http://www.microsoft.com>

Support icon

Knowledge base

Fill in:

product: Word for Windows & Macintosh

words to look for: Ge0165.exe

Click icon to download

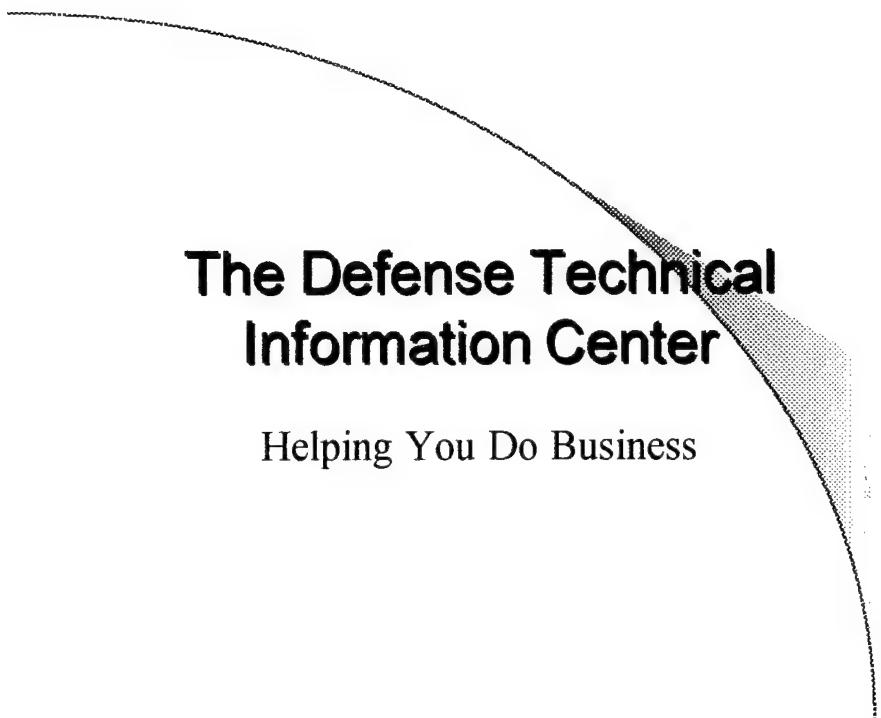
Self-expanding file

The Boeing Company

Summary

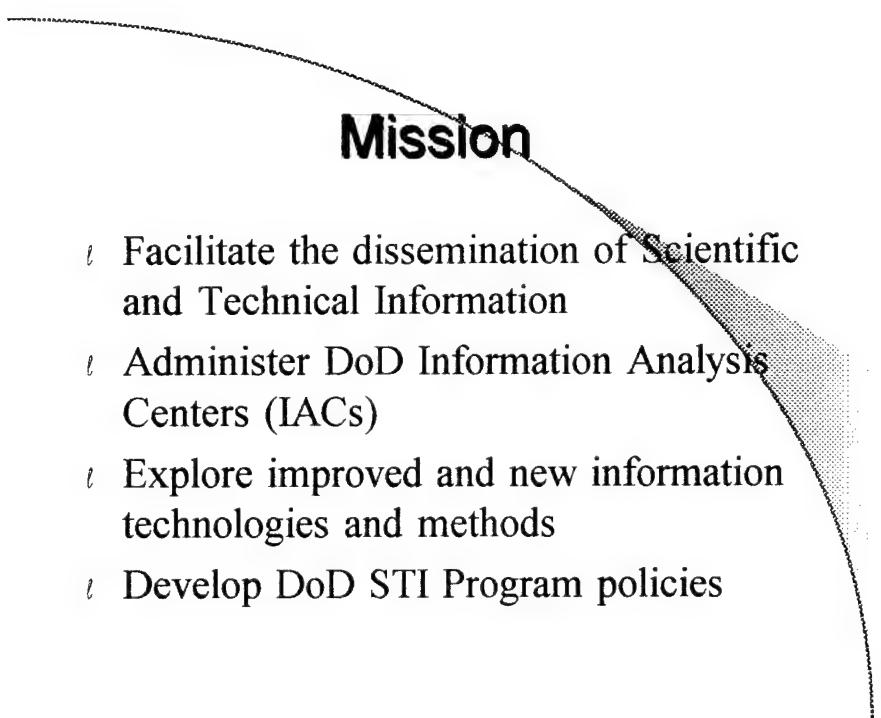
- Establish good working relationship with DTIC.
- Process data in a central office.
- Perform data consistency checks on write-ups while they are stored in a conventional database.
- Create the final report files that will be submitted to DTIC under program control to ensure consistency.

Enjoy Success!



The Defense Technical Information Center

Helping You Do Business



Mission

- l Facilitate the dissemination of Scientific and Technical Information
- l Administer DoD Information Analysis Centers (IACs)
- l Explore improved and new information technologies and methods
- l Develop DoD STI Program policies

Information Support To Industry

- l* DoD Information Repository
 - Database Access
 - Database Reporting
 - Information Pointing
 - Document Services - Cheap/Fast!
- l* Information Analysis Centers (IACs)

DoD Information Repository

- l* Technical Report Database
- l* Work Unit Information System (WUIS)
- l* Independent Research and Development (IR&D)
- l* Research and Development Descriptive Summaries (RDDS)
- l* Internet Resources

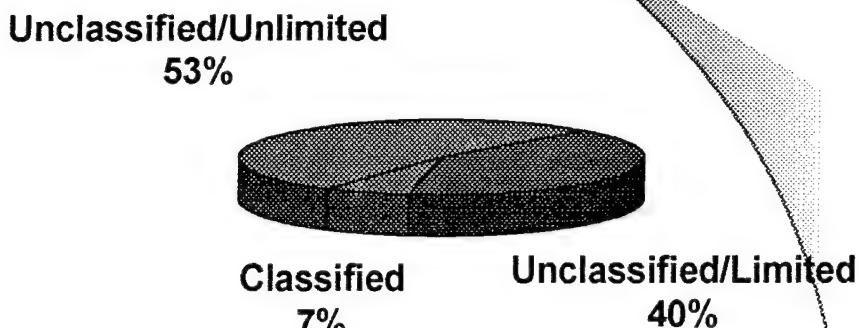
Technical Reports

- l* Two million reports
 - 1940 to the present
- l* Accessible:
 - On-Line Searching
 - l* (DROLS/WAIS)
 - l* CD-ROM
 - Current Awareness Bibliographies
- l* Automatic Document Dissemination (ADD)
- l* Demand Document Orders

What Is In DTIC's TR Database?

- l* Research, Studies and Analyses Results
- l* Development “Lessons Learned”, e.g. FSX
- l* Requirements Documents
 - Mission Needs Statements (MNS)
 - Operations Requirements Documents (ORDs)
 - Technical Area plans (TAPs)
 - Mission Area Plans (MAPs)
- l* DoD Directives and Instructions

Technical Report Input By Classification and Distribution Availability



Technical Reports - What's in it for you?

- l Who's working in the Field? What have they accomplished?
- l What technologies is DoD interested in?
- l What's your competition doing?
- l Marketing Vehicle

Work Unit Information System (WUIS)

- l Tracks Defense-related R&E and Studies efforts in Budget Categories 6.1 - 6.6
 - RDT&E efforts
 - In-house/contracted management analyses and studies descriptions
 - Small Business Innovation Research

WUIS

- l 10,000 active projects (unclassified, limited, and classified)
- l Accessible:
 - On-line
 - l DROLS
 - l WAIS/Internet (soon!)
 - CD-ROM (soon!)
- l Recurring Reports

WUIS - What's in it for you?

- l* Who's Working in the Field? How do you contact them?
- l* What are they trying to accomplish?
- l* What technologies is DoD currently interested in?
- l* What's your competition doing?
- l* Marketing Vehicle

Independent Research and Development (IR&D)

Defense Authorization Act FY93-94

- l Legislation Provides for "Implementation of Regular Methods of Transmission"
- l **From Contractors to the DoD:** "Information Regarding Progress by the Contractor on the Contractor's IR&D Programs"
- l **From the DoD to Contractors:** "Timely and Comprehensive Information Regarding Planned or Expected DoD Future Needs"

From Contractors to the DoD

- l Independent Research and Development (IR&D) Database
 - 3,669 proprietary projects worth \$2.8 Billion
 - 102 corporate entities
- l Accessible
 - On-line/CD-ROM
 - l 700+ government users
 - l Air Force, Army, Navy, NASA

IR&D - What's in it for you?

- l Large Contractors Must Report (recovering \$10M+ total or \$1M+ For a Single Project)
- l Marketing Vehicle
 - Corporate overview
 - Project Summary
 - Project descriptions
- l Requirements/capabilities matching
- l DoD Feedback - Wise IR&D Investments?

Matching DoD Requirements to Industry Research

- l Air Force Pilot Project
- l Identified 232 Infrastructure Requirements
- l Searched 79 Mission Needs Statements
- l Recorded Matches on 71

Sample of IR&D Matching Search Summary

1. Generic Engine Test System	SAALC 2 Projects	\$3.7 M
2. Intel/Reliable Image Scanning	OOALC 3 Projects	\$2.1 M
3. New Technology for Paint App.	OOALC 1 Project	\$.043 M
4. Telerobotic Surface Finishing Workcell	SAALC 2 Projects	\$4.1 M
5. Med Pressure Water Cleaning for C-130	WRALC 3 Projects	\$1.2 M
6. Low Observable IR Maint./Surveil. Test	(No Matches)	
7. High Capacity Solid State Recorders	46 TW 3 Projects	\$3.7 M
8. Ability-Inspect for Corrosion Under Existing Paint	OCALC 1 Project	\$.22 M
9. Detection of Hidden Corrosion	SAALC 5 Projects	\$3.1 M
10. On-Aircraft-Bonding Surface Preparation	WRALC 8 Projects	\$6.1 M
11. Durability Patch	WRALC 3 Projects	\$0.58 M

Safeguards for Company Proprietary Information

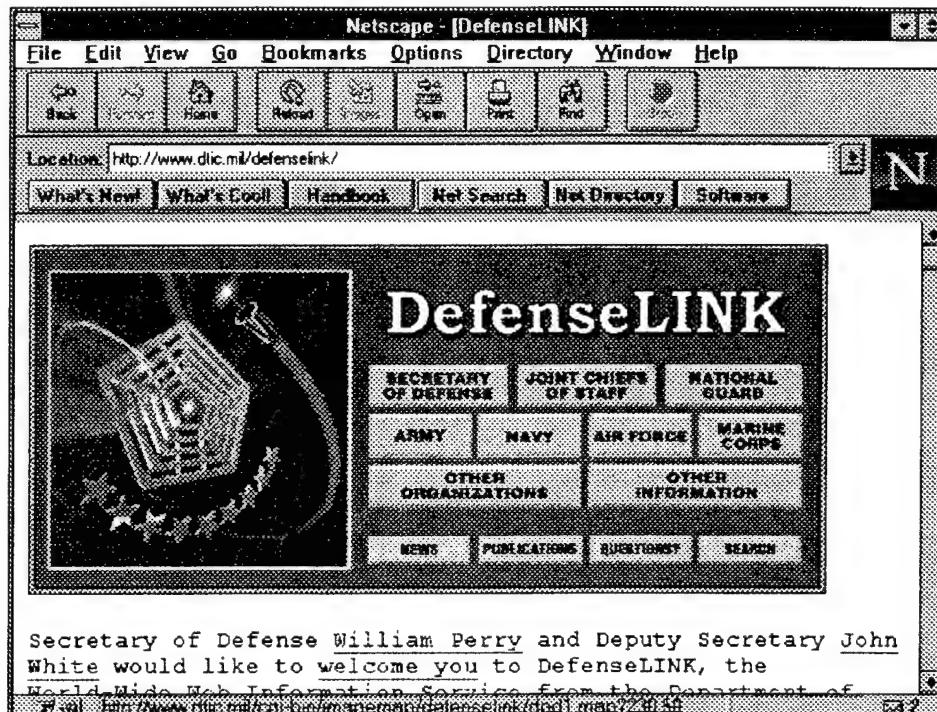
- l Marked DoD Only, Proprietary Information
- l Required Nondisclosure Agreements
- l Exempt from FOIA
- l Treated as Classified Data Within DTIC

From DoD To Contractors

- l Air Force Bulletin Board
- l MNSs, ORDs, MAPs, TAPs
- l WUIS
- l RDDS

Internet Resources

- l 70+ Homepages: DefenseLink, Air ForceLink, and BosiniaLink...
- l DoD Government Information Locator (GILS)
- l Scientific and Technical Information Network (STINET)
- l Defense Technical Information WEB (DTIW)



STINET

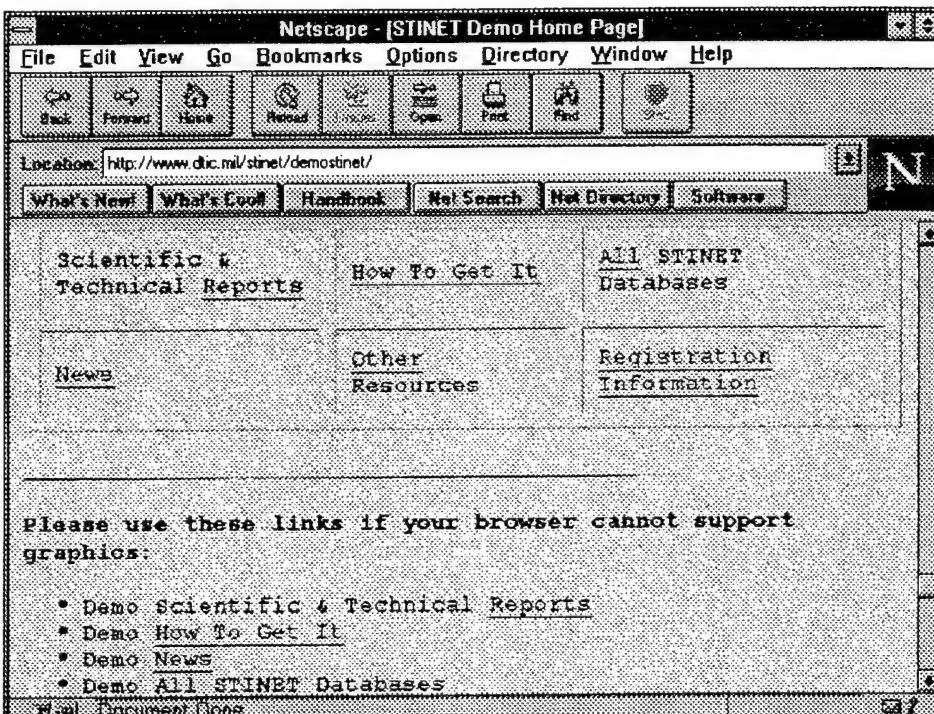
- | Technical Reports Database
 - WAIS-based
 - | Electronic Technical Reports
 - PDF, Post Script, Native Formats
 - | Directories
 - | Electronic Journals
 - | Links to Other Government and Commercial Information Resources

STINET Electronic Journals

- l* Armed Forces News Service
- l* C4I News
- l* Defense Daily
- l* The Global Positioning
- l* Satellite News
- l* Technology Transfer
- l* FIRST News Service (3 month test)

STINET Demo Page

- l* Contains
 - Approximately 30k citations to U2 technical reports
 - Subset of Defense Daily
- l* Will be replaced with Public STINET Address:
 - <http://www.dtic.mil/demostinet>



Other Internet Offerings

- ✓ DoD Directives and Instructions
 - <http://www.dtic.mil/adm/>
- ✓ DoD Single Stock Point for Specifications & Standards
 - <http://www.dtic.mil/dps-phila/>
- ✓ Defense Technical Information WEB
 - <http://www.dtic.mil/dtiw>

Research and Development Descriptive Summaries

- l Research, Development, Test and Evaluation (RDT&E) Programs and Program Elements (PE Numbers)
- l Contributors
 - Air Force
 - Army
 - Other Defense Agencies
- l <http://www.dtic.mil/rdds>

Acrobat Reader - [STINET-W]

File Edit View Tools Window Help

RDT&E BUDGET ITEM JUSTIFICATION SHEET

BUDGET ACTIVITY		PE NUMBER AND		
2 - Exploratory Development		0602601F		
COST (In Thousands)		FY 1994 Actual	FY 1995 Estimate	FY 1996 Estimate
Total Program Element (PE) Cost		132,358	158,315	124,446
1010 Geophysics Technology		31,676	34,640	24,296
1011 Rocket Propulsion Technology		31,487	36,228	32,328
3326 Lasers and Imaging Technology		30,986	32,457	18,752
5797 Advanced Weapons Technology and Assessments		14,820	18,368	17,340
8809 Space Vehicle Technology		23,389	36,622	31,730

(U) Note: In FY 1995, the three Exploratory Development PEs at the Phillips Laboratory (PE 0602601F) were consolidated into the Geophysics Technology PE (PE 1010).

Information Analysis Centers (IACs)

- l Answer Specific Discipline Related Questions
- l Create
 - Scientific and Engineering Reference works
 - Abstracts and Indexes
- l Task Orders
 - Critical reviews
 - Technology assessments

DTIC Managed IACs

- l Ceramics
- l Chemical Propulsion
- l Guidance and Control
- l Infrared
- l Metals
- l Reliability
- l Software

DTIC Managed IACs

- l* Chemical/Biological Warfare/Defense
- l* Crew Systems Ergonomics
- l* High Temperature Materials
- l* Manufacturing Technology
- l* Metal Matrix Composites
- l* Nondestructive Testing
- l* Survivability/Vulnerability

IACs - What's in it for you?

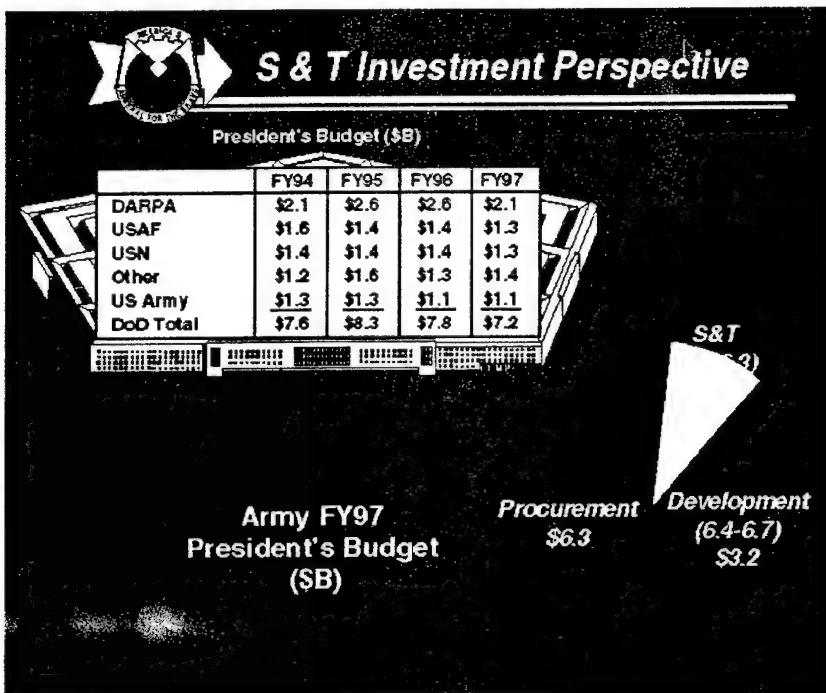
- l* Answers to Specific Technical Questions
- l* Unbiased Source of Information
- l* Task Order-based Technical Assistance
- l* Handbooks and Reference Products
- l* Easy to Use/Cost Effective
 - \$11.7M FY 96 Appropriation
 - \$54M in FY 96 Tasks

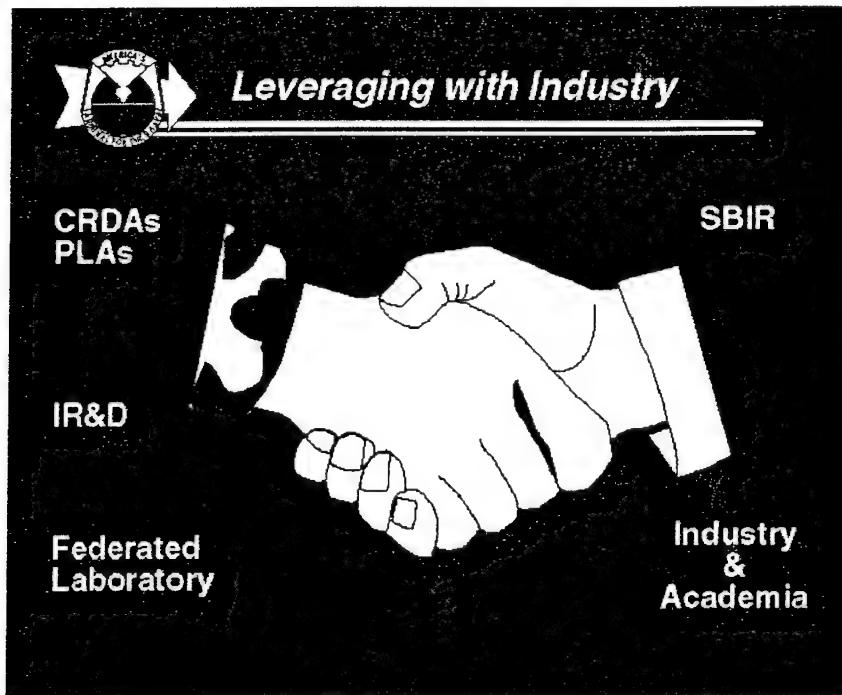
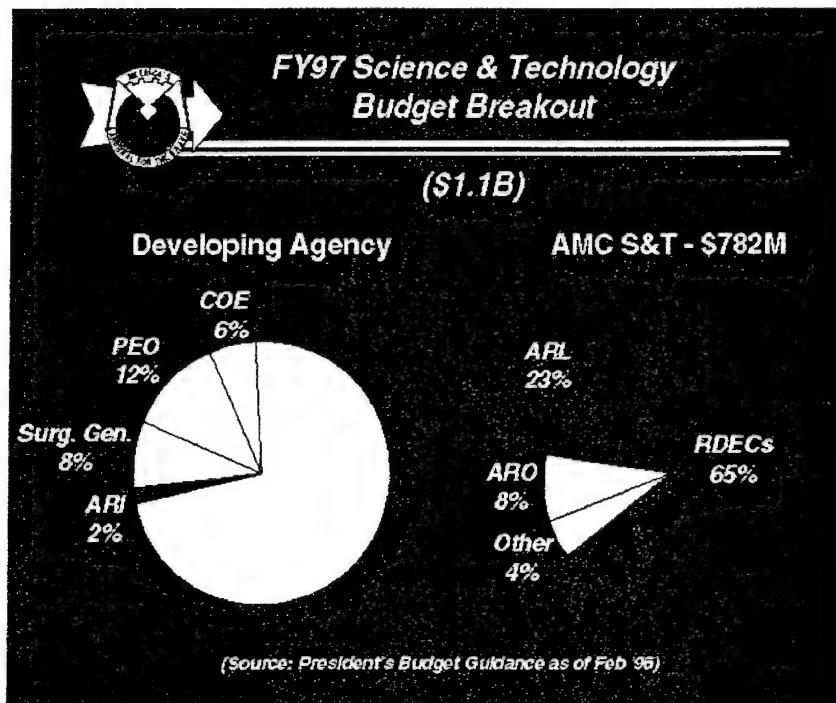
What's Next?

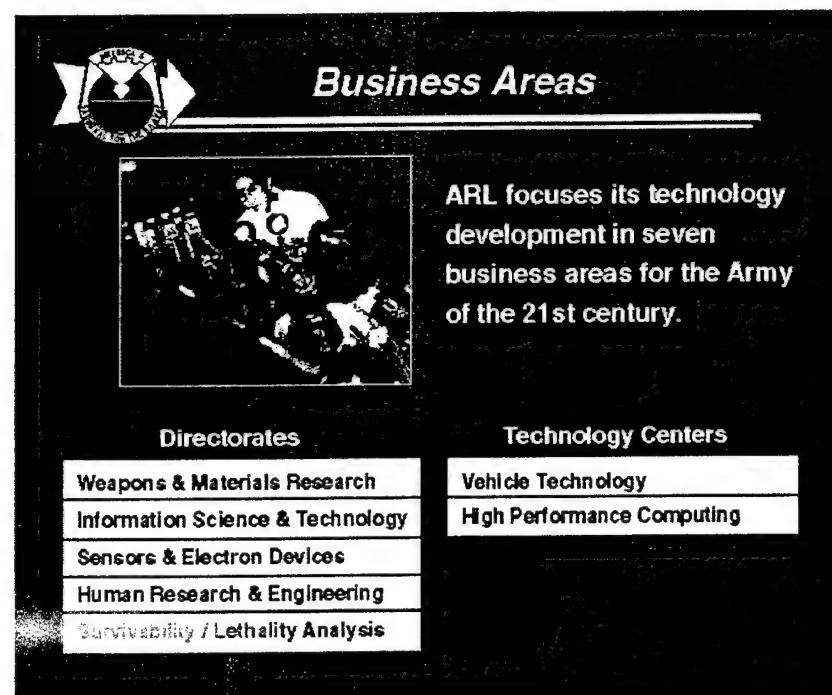
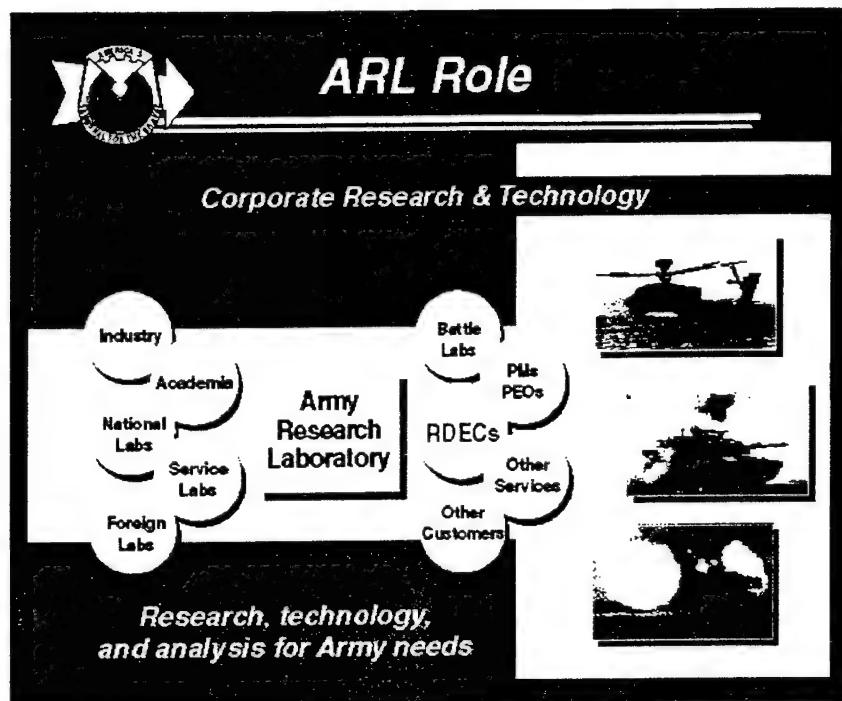
- l* Increased Acquisition Emphasis
 - Foreign Information
 - Acquisitions Life Cycle Information
- l* Public STINET
- l* More Electronic Documents
- l* Information Linking
- l* Search System Replacement

How to Get More Information

- l* DTIC Products and Services
 - 1-800-CAL-DTIC
- l* Acquisition (TR, IR&D, WUIS)
 - Frank Scott
 - l* 703/767-8038
 - l* fscott@dtic.mil
- l* IACs
 - Brian McCabe
 - l* 703/767-9122
 - l* bmccabe@dtic.mil
- l* Presentation
 - Jim Erwin
 - l* 703/767-8060
 - l* jerwin@dtic.mil







 **The Federated Laboratory**

ARL Partnerships with Private Sector

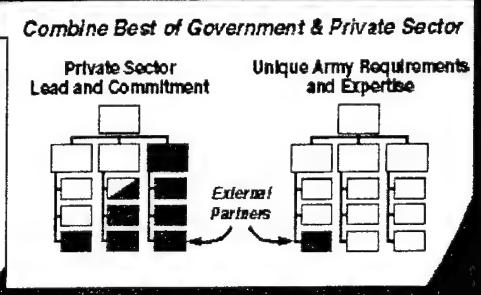


20% personnel exchange
ARL Government Employees
Funded R&D partners

Drawing upon the best of the public and private sectors to produce research and technology for future land warfare supremacy.

- Cooperative Agreement
- Integrated management
- Staff rotation, education and communications

Combine Best of Government & Private Sector



Private Sector Lead and Commitment Unique Army Requirements and Expertise

Consortium Management University Industry

External Partners

 **Federated Laboratory Partnerships**

Advanced Sensors

Research in advanced sensors focused on multi-domain smart sensors, multisensor fusion automatic target recognition algorithms, radar sensors, and signal processing.

Consortium Lead: Lockheed Sanders	
Texas Instruments	Ohio State University Research Foundation
Clark Atlanta University	University of Maryland
Environmental Research Institute of Michigan	The Regents of the University of Michigan
Georgia Tech Research Corp.	University of New Mexico Center for High Technology Materials
Lockheed Missiles and Space Co.	Stanford University
Massachusetts Institute of Technology	



Federated Laboratory Partnerships

Telecommunications / Information Distribution

Research focusing on wireless battlefield digital communications, tactical/strategic interoperability, information distribution and multimedia concepts.

Consortium Lead: Lockheed Sanders

Bell Communication Research	University of Delaware
GTE Laboratories, Inc.	University of Maryland
Howard University	City College of New York
Massachusetts Institute of Technology	Morgan State University
Motorola, Inc.	



Federated Laboratory Partnerships

Advanced and Interactive Displays

Research that will focus on human-computer interface in an information rich environment and display configuration.

Consortium Lead: Rockwell International Corp.

University of Illinois at Urbana - Champaign	North Carolina A&T State University
Sytronics, Inc.	Microelectronics Center of North Carolina

 **Federated Laboratory Partnerships**

High Performance Computing

Research that will focus on high performance computing, advanced algorithms and software technology, and the evaluation of novel computing environments.

<i>Consortium Lead: University of Minnesota</i>	
Clark Atlanta University	Howard University
Florida A&M University	Jackson State University

 **Independent Research & Development (IR&D)**



- Annual IR&D expenditure by industry estimated at \$2 billion
- Army views IR&D as leveraging opportunity
- Close communication helps industry focus



Technology Transfer Mechanisms

Domestic Technology Transfer

CRDA: Cooperative Research and Development Agreements

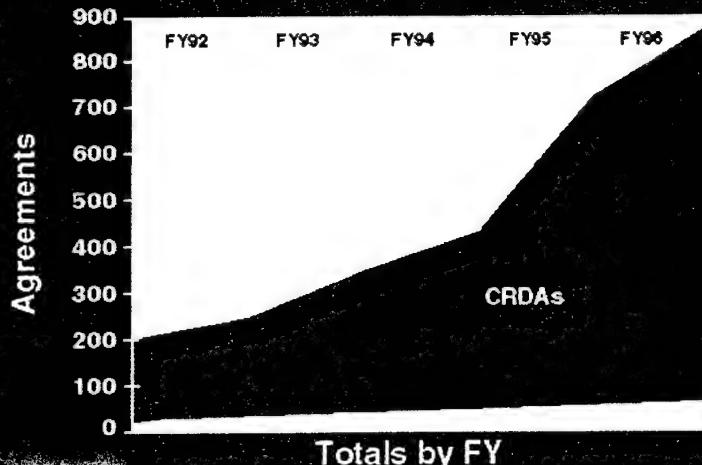
- Pledge by a government laboratory and industry/academia to conduct joint R&D
- Government provides resources, but no funds
- Industry / academia provide funds (if necessary), and other resources
- Agreement defines sharing of intellectual property

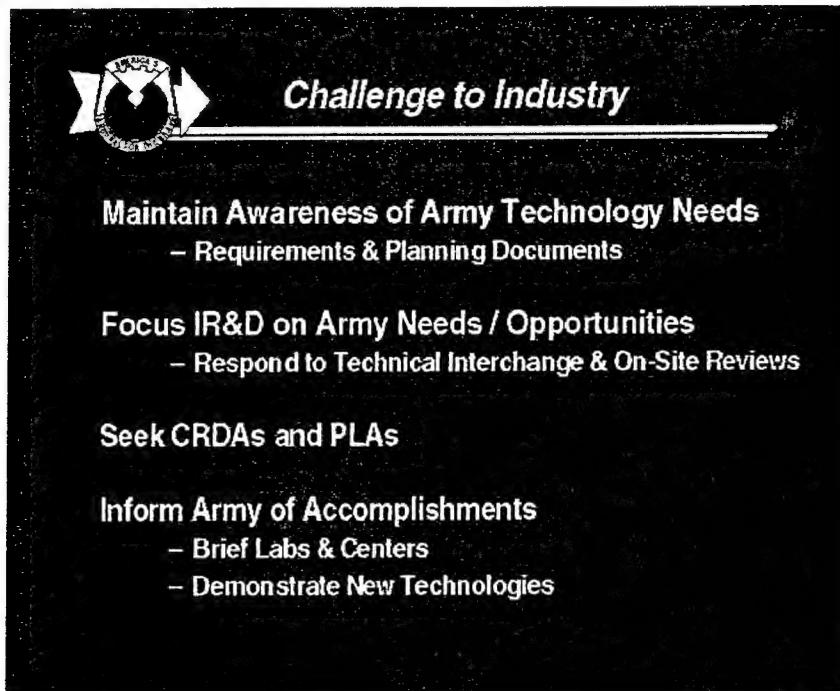
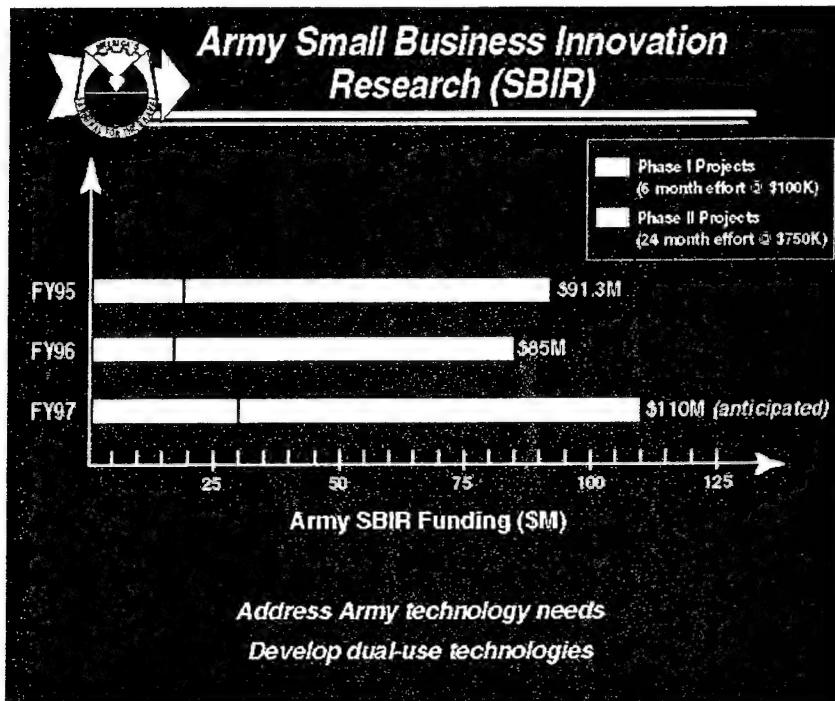
PLA: Patent Licensing Agreements

- Provides financial incentive to inventors and labs
- Assures transition of technology to private sector



Army Accepted CRDAs/PLAs





Navy Perspective



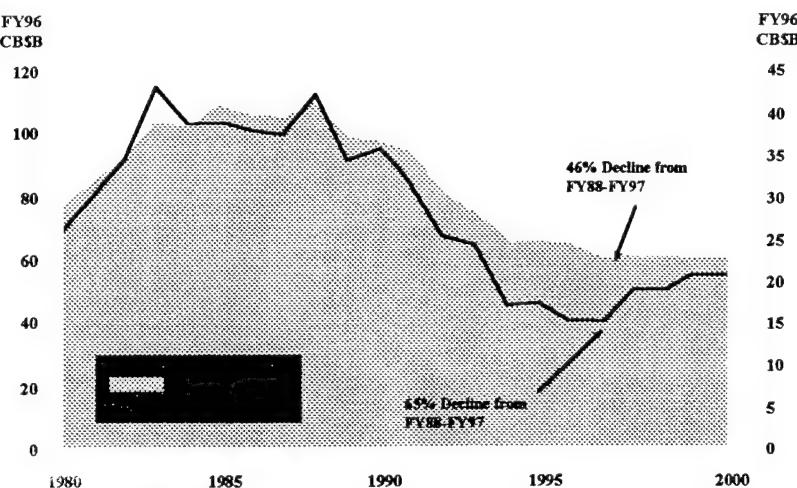
Presented to
Strategic Information
Management Conference
Wright-Patterson AFB

11 July 1996

David Rossi
Office of Naval Research



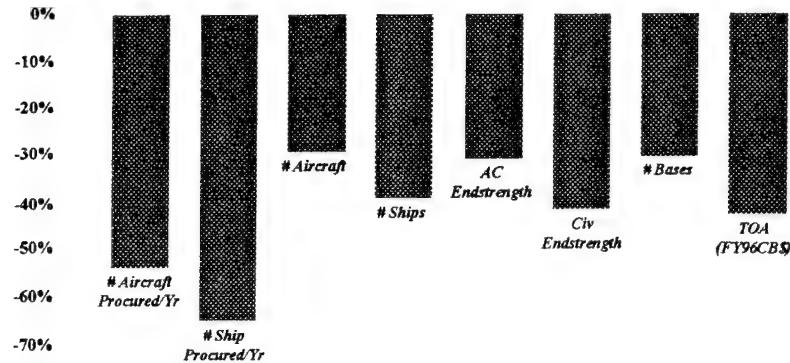
Total TOA* and Total Navy Procurement



* Less NFIP/SOF/DHP



Navy Reduction Reality: FY87 to FY01



*Bottom Line: 40% Decrease in Force Structure
(Smaller Battle Groups/ARGs/Forces Available for Support Operations)*



Recapitalization/Modernization Readiness for the Future

SSNs/CVNs

- 1 SSN23 bridges gap to new class in FY98
- 2 New SSN provides extensive NEW capability at lower cost (shallow water, strike, improved comms)
CVN 76 procured in FY95
- 3 Sustains two nuclear shipbuilders
- 4

Naval Aviation

- 1 F/A 18 E/F
 - Multi mission; emphasis on sensors/weapons
 - CVW strike cornerstone for FY02 and beyond; fills decks
 - 20 yes potential for growth
- 2 JSF
 - Development of common components for future engines, avionics, munitions...
 - Naval silhouette but 80% joint

Surface Combatants

- 1 DDG 51 program (rqmt 3/yr) which sustains two shipbuilders and recapitalizes the force.

V-22

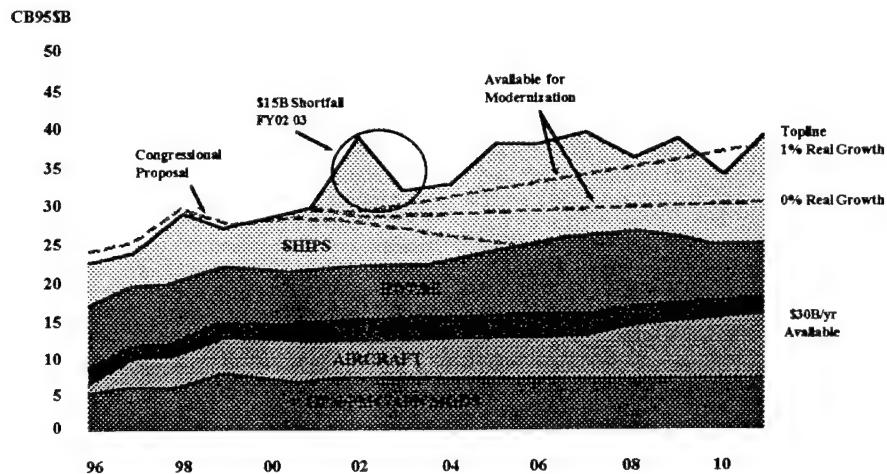
- 1 Replaces aging USMC CH 46/53D force
- 2 Dramatic increase in capability for Operational Maneuver from the Sea

Amphibs

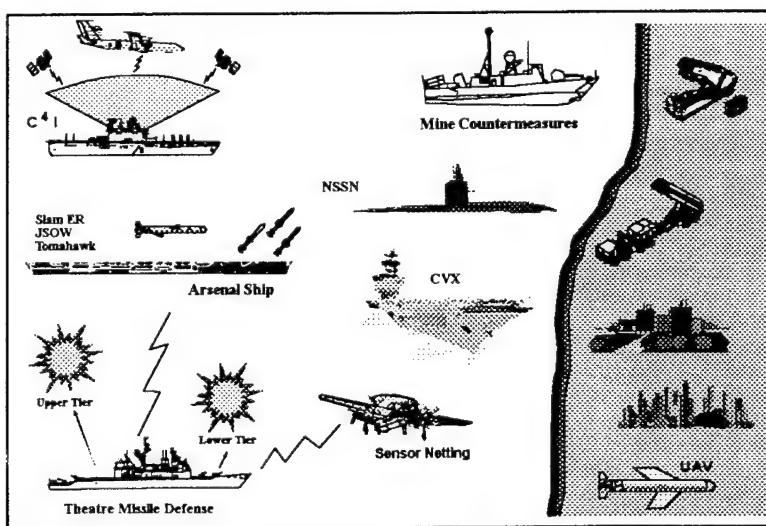
- 1 LPD 17 lead ship procurement in FY96
- 2 Procuring LHD 7 in FY96
- 3 Comms/link upgrades to LHAs/LHDs: supports CJTF capability



Our Challenge: The Bow Wave



Advanced Technology for the New Environment





Affordability in Navy S&T

- Life Cycle Cost (LCC)

- New Weapons

- Commercial Products



Affordability Component Programs

- Focused Programs:

- Affordability primary objective

- Attribute Programs

- Cost reduction reflected, but not primary objective

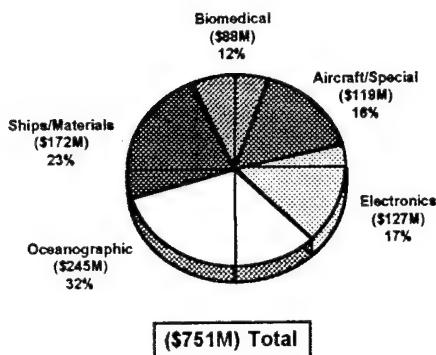


ONR S&T

{Total (\$751M) ~FA (\$201.5M~27%)}

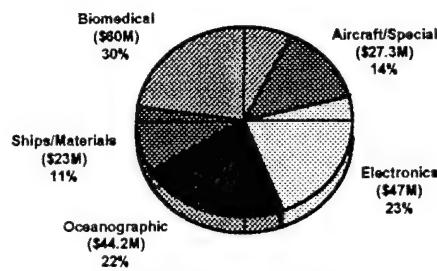
6.2 and 6.3 Investments

Total



(\$751M) Total

Focused + Attribute



(\$201.5M) Total = 27%



Focused and Attribute Programs

Electronics

- Radar Surveillance Technology
- Electro Optics/Infrared Surveillance Technology
- Engineering of Complex Systems
- Microelectronics
- Wide Area Surveillance (Accelerated Capabilities Initiative)
- Electronic Warfare Technology

Oceanographic

- Sensor and Array Technology
- Undersea Signal Processing Technology
- Light Weight Mine Sweeper
- Battlefield Electronics Support
- Advanced Engine/Propulsion Technology
- Environmental Adaptability
- Adaptive Atmospheric Propagation
- Enhanced Mission Planning

Ships/Materials

- Airborne Structural Materials
- Airborne Coatings, Corrosion Containment, and Non Destructive Evaluation
- Seaborne Structural Materials
- Seaborne Coatings, Corrosion Containment, and Non Destructive Evaluation
- Avionics Guidance and Control
- Advanced Engine/Propulsion Technology

Biomedical

- Fleet Health Technology Combat Simulation and Training Devices
- Freeze Dried Blood
- Training Systems
- Manpower and Personnel Systems
- Performance Enhancement

Aircraft/Special

- Guidance and Control
- Ordnance Technology
- Propulsion Technology
- Aircraft Propulsion
- Air Vehicle
- Air Vehicle Diagnostic System



Focused Affordability Programs (Sample)

- ✓ **Power Electronic Building Blocks (PEBB)**
- ✓ **Condition Based Maintenance (CBM)**
- ✓ **Embedded Training**
- ✓ **Composite Structures**



Payoff

- ✓ **Life Cycle Cost savings validated**
- ✓ **Higher confidence in fielded systems**
- ✓ **Mitigated cost, schedule and performance risk**
- ✓ **Increased leverage of Science and Technology investment**



New Navy Emphasis in R&D

- t Leverage IR&D technology investments***
- t Promote affordable Navy systems***
- t Improve communications***



Improved Communications

- t Platforms***
 - Primes engaged***
 - Reduced cost***
- t Subsystems/components***
 - Technology insertion***
 - Reduced cost***



New IR&D Policy / Project Direction

- l Major acquisition programs***
 - Focused technology exchange***

- l Fleet needs***
 - Engage specific industry***



Major Acquisition Programs

- l CVX (Next Generation Aircraft Carrier)***
- l SC-21 (21st Century Surface Combatant)***
- l Advanced Cruise Missile***
- l NSSN (Next Generation SSN)***
- l JSF (Joint Strike Fighter)***
- l LPD-17 (Amphibious Assault Ship)***
- l AAV (Advanced Amphibious Assault Vehicle)***

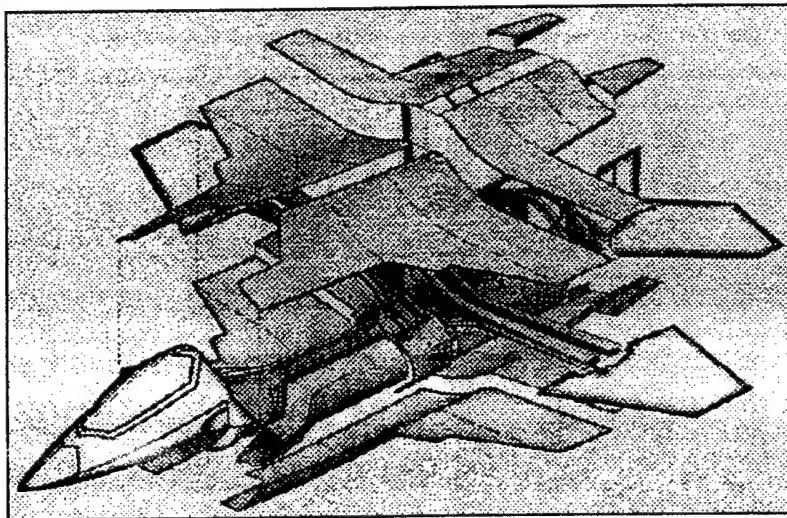


Summary

- Navy interface with industry at multiple levels
 - Fleet
 - SYSCOMs/PEOs/DRPMs
 - Navy Scientists and Engineers**
 - Improved access to navy S&T needs via ONR and NARDIC Homepage**
-

<http://www.onr.navy.mil/c361/onrpage.s/nardic.htm> (ONR Home Page)

<http://nardic.nrl.navy.mil> (NARDIC Home Page)





AIR FORCE SCIENCE & TECHNOLOGY

Overview

Mr. Tim Dues
Chief, Plans and Programs Division
HQ Air Force Materiel Command



OVERVIEW

- ➡ • AF S&T Organization and Resources
- Air Force Modernization Planning Process
- Investment Strategy
- Summary



THE S&T MISSION

AIR FORCE MISSION

*TO DEFEND THE UNITED STATES THROUGH CONTROL
AND EXPLOITATION OF AIR AND SPACE*

AIR FORCE SCIENCE & TECHNOLOGY MISSION

*TO DISCOVER, DEVELOP, AND INTEGRATE AFFORDABLE
WARFIGHTING TECHNOLOGIES TO OUR
AIR AND SPACE FORCES*

Ronald R. Fogelman, General, USAF
Chief of Staff

Sheila E. Widnall
Secretary of the Air Force

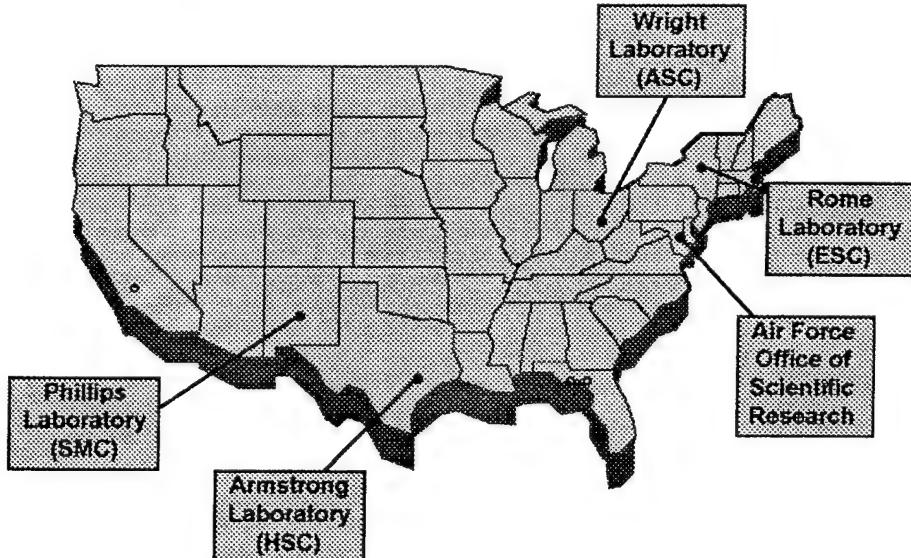
AIR FORCE LABORATORIES...

*AIR FORCE, INDUSTRY, AND UNIVERSITY PEOPLE
WORKING TOGETHER TO PROVIDE GLOBAL POWER AND
GLOBAL REACH FOR AMERICA*

S&T Overview 9/1996



AIR FORCE LABORATORIES



S&T Overview 9/1996



TECHNOLOGY AREA PLAN RESPONSIBILITIES

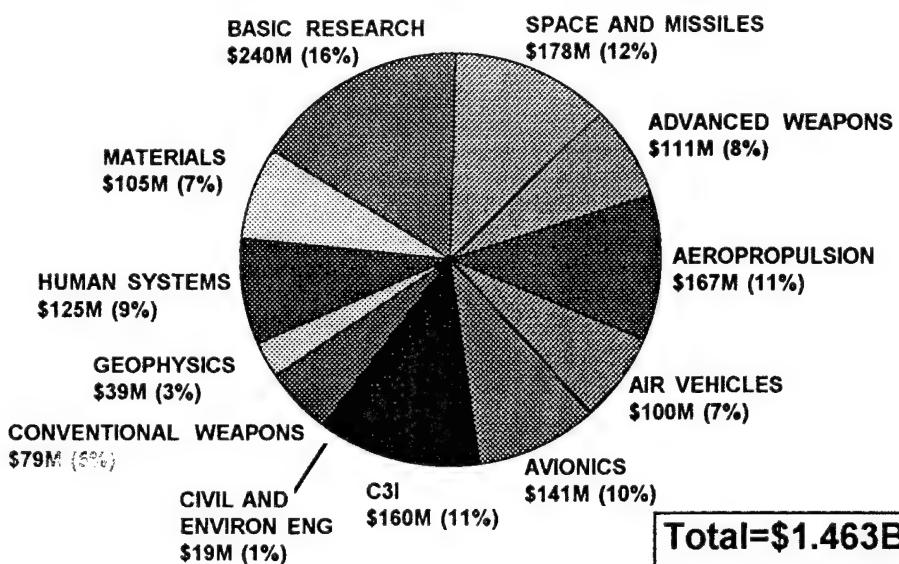
AREAS	RESPONSIBLE ORGANIZATION
Aero Propulsion & Power	
Air Vehicles	Wright Laboratory
Avionics	
Materials	
Conventional Armament	
Advanced Weapons	
Geophysics	Phillips Laboratory
Space & Missiles	
C3I	Rome Laboratory
Human Systems	
Civil Engr. & Environmental Qual	Armstrong Laboratory
Research Sciences	AF Office of Scientific Research

S&T Overview 9N896



FY96 AF S&T INVESTMENT BY TECHNOLOGY AREA

Appropriated \$



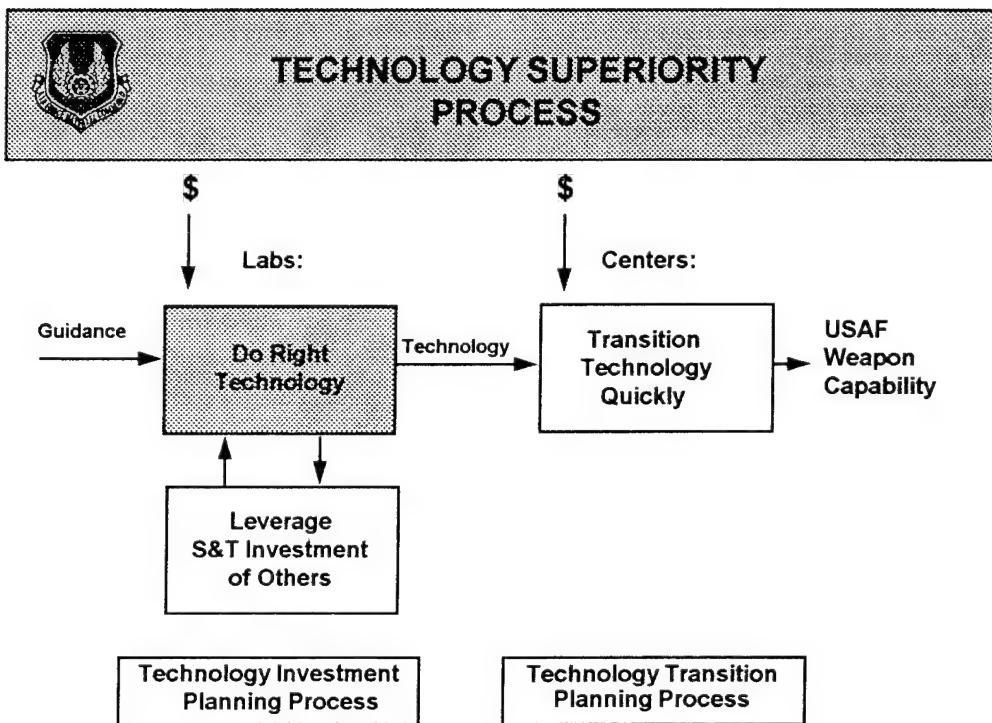


OVERVIEW

- AF S&T Organization and Resources

- ➡ • Air Force Modernization Planning Process
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 - Summary

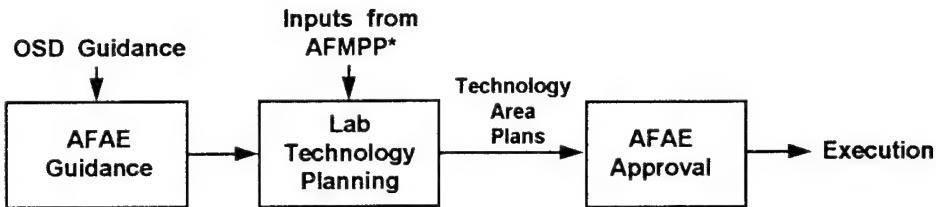
S&T Overview 9/18/96



S&T Overview 9/18/96



INVESTMENT PLANNING PROCESS

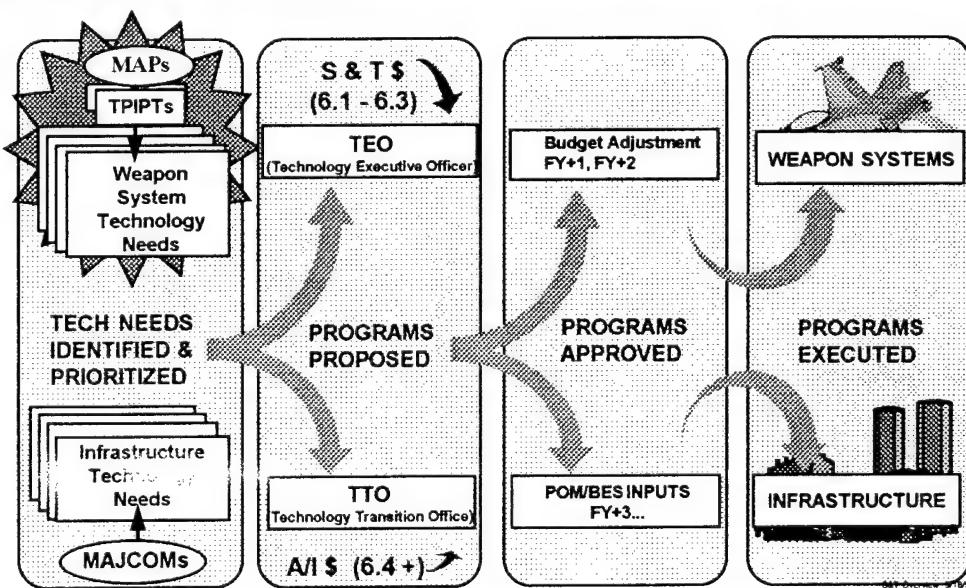


*Air Force Modernization
Planning Process

SAT Overview 9/16/96

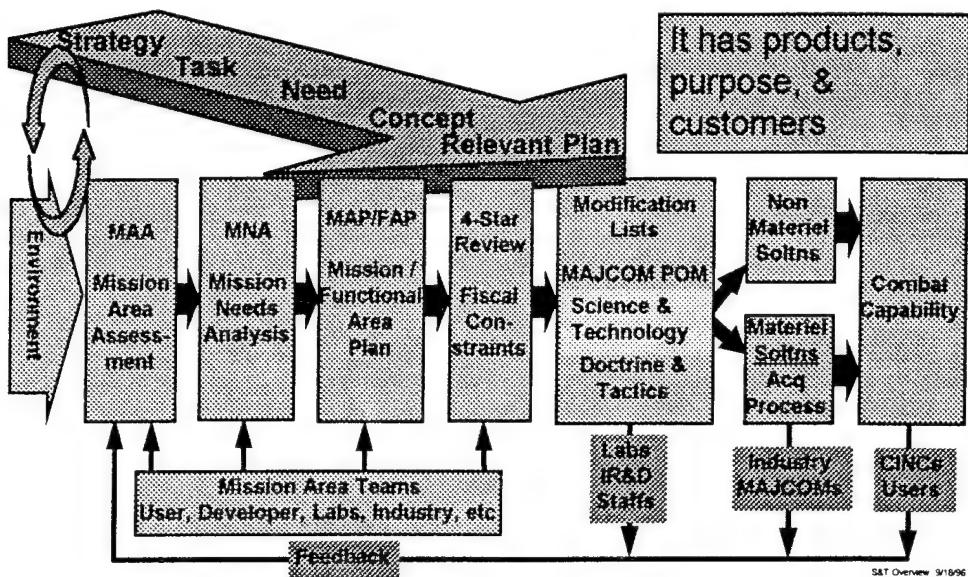


TECHNOLOGY MASTER PROCESS (TMP)





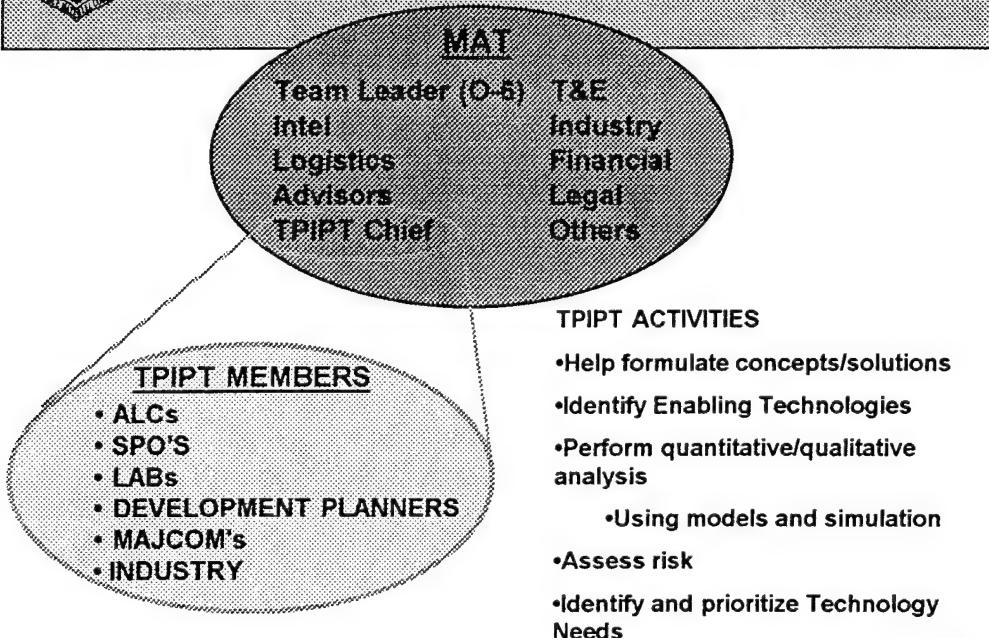
CURRENT MODERNIZATION PLANNING PROCESS



S&T Overview 9/18/96

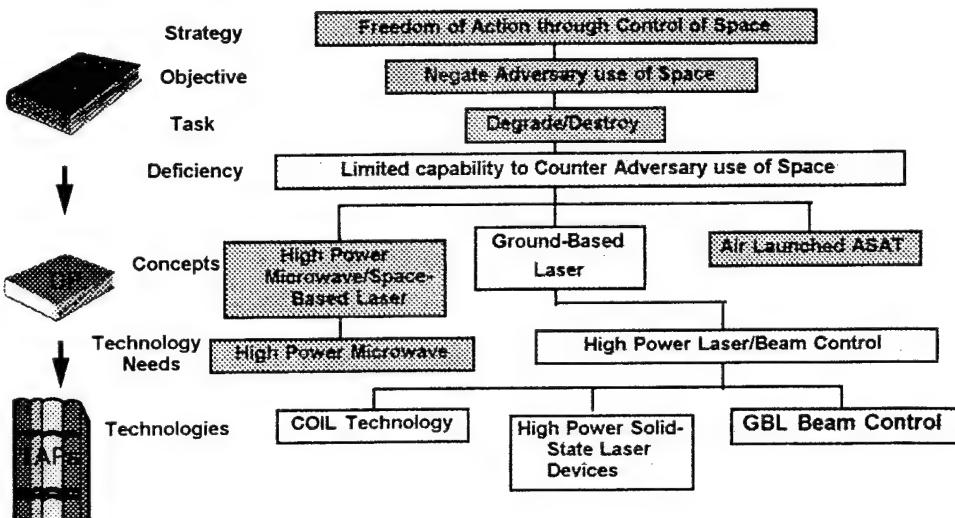


TECHNICAL PLANNING INTEGRATED PRODUCT TEAM





EXAMPLE SPACE CONTROL-COUNTERSPACE

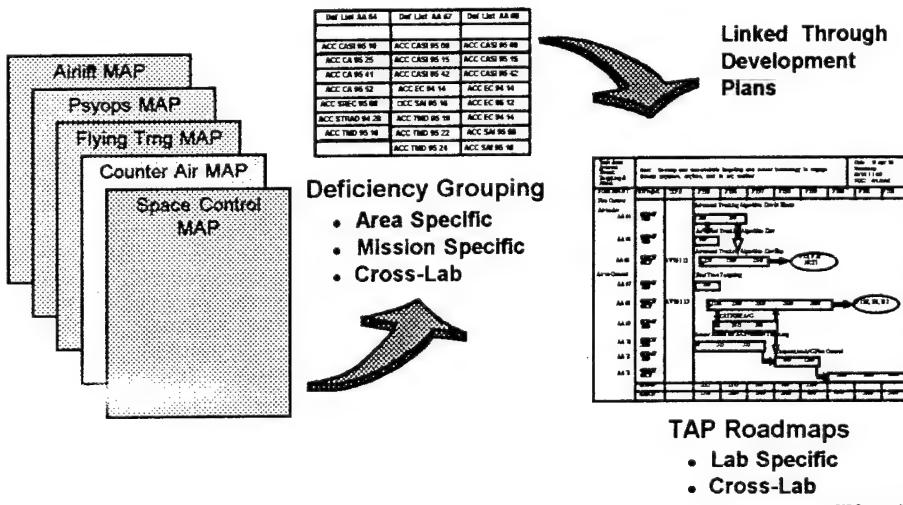


SAT Overview 9/1996



MAP/TAP Correlation Database

- Key information can be extracted from the database

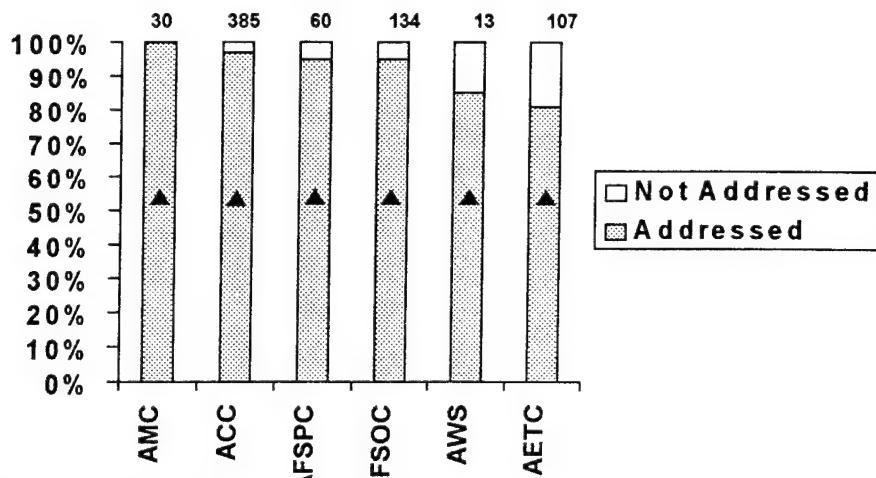


SAT Overview 9/1996



PERCENTAGE OF MAJCOM DEFICIENCIES ADDRESSED (CY95)

S&T Overview



Lab POCs:
AL - Maj J. Brown, AL/XPT, DSN 240-3608
PL - John Kuzmar, PL/XPP, DSN 240-1701
RL - Dr. E. Daniszewski, RL/XPP, DSN 697-3251
WC - Ray Stymanski, WL/XPS, DSN 786-4843

S&T Overview 9/18/96



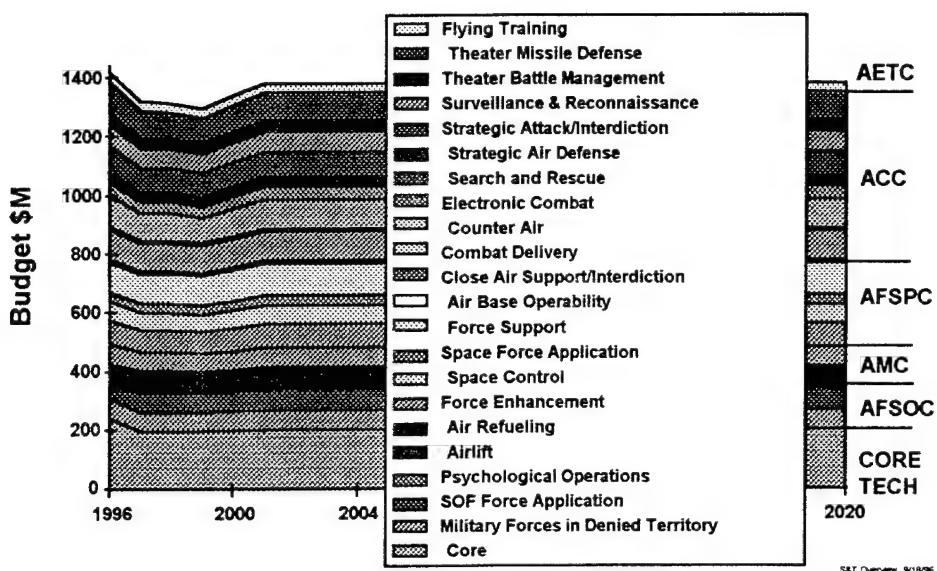
INFORMATION AVAILABLE FROM CORRELATION DATABASE

- All Laboratory Projects Addressing each MAJCOM Deficiency
 - Identify Inadequate Coverage
 - Identify Lab Programs which are not Addressing a Deficiency
 - Determine S&T Support to each Mission Area
- Deficiencies Addressed by each Laboratory Project
 - Identify Mission Impacts from Project Deletion
- Timelines and Funding Profiles of the Lab Projects
 - Identify Inconsistencies in Need Date Vs Project Completion Date
 - Provide Funding Data Associated with Preferred Solutions

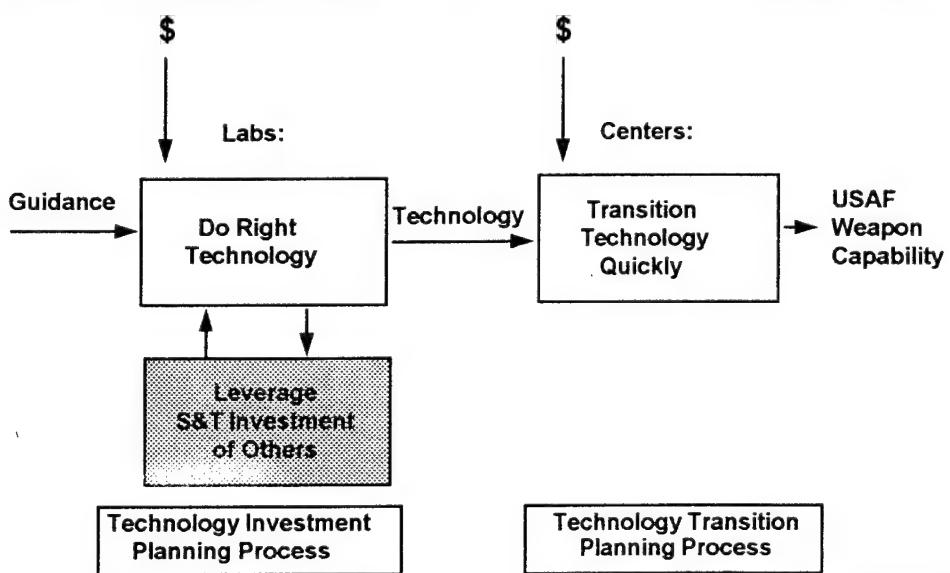
S&T Overview 9/18/96



S&T INVESTMENT IN MISSION AREAS

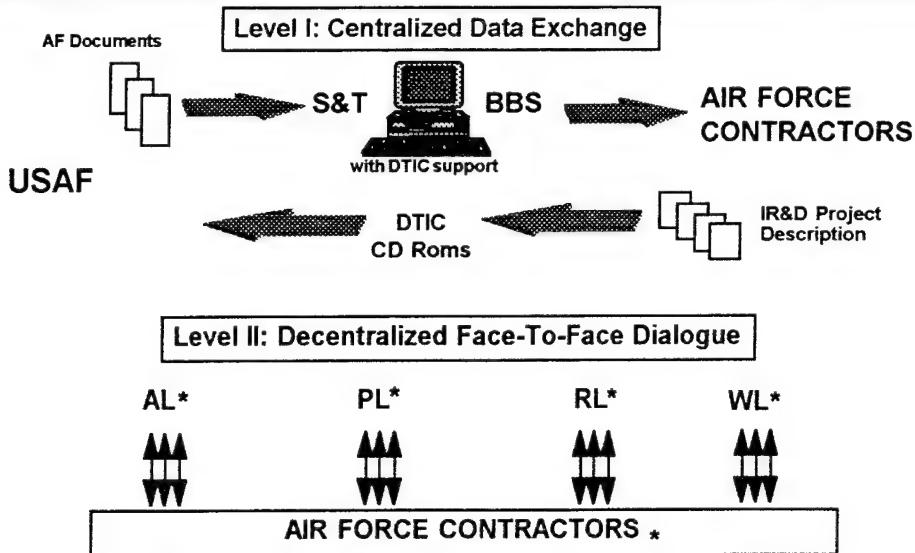



TECHNOLOGY SUPERIORITY PROCESS





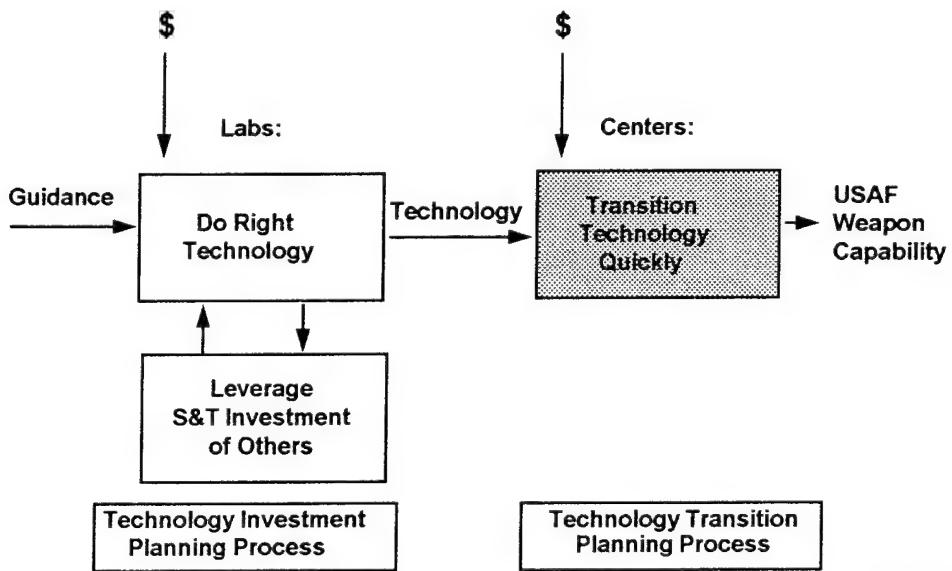
AF IR&D PROCESS - CENTRALIZED / DECENTRALIZED -



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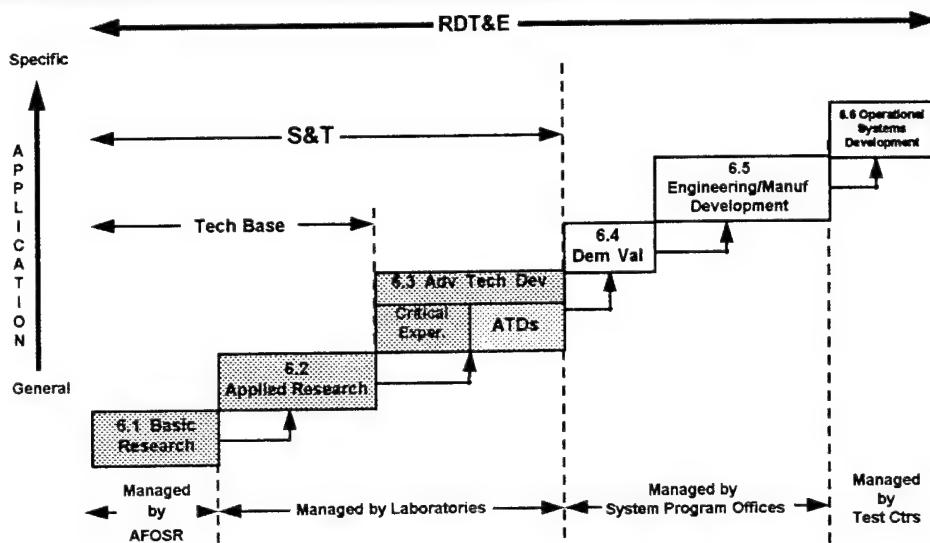


TECHNOLOGY SUPERIORITY PROCESS





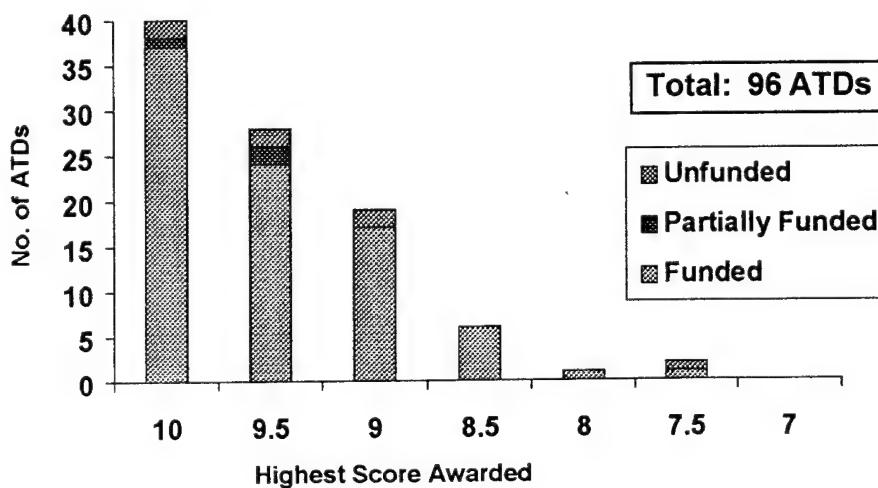
MAJOR FORCE PROGRAM 6 RELATIONSHIP (3600 APPROPRIATION)



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COMBINED MAJCOM ATD EVALUATIONS (FY 95 Cycle: ATDs for FY96 / 97 / 98)



S&T Overview 9/18/96



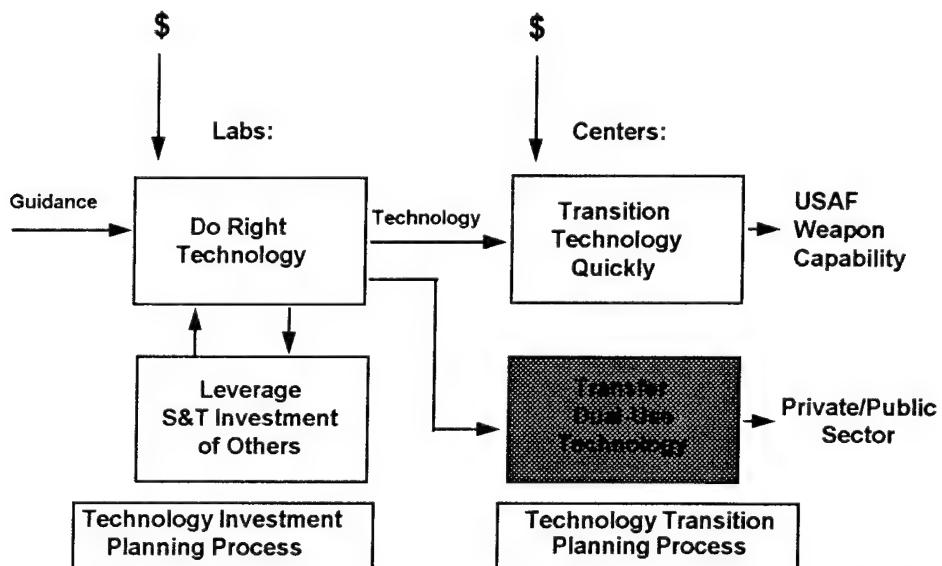
TECHNOLOGY TRANSITION PLAN

- “Contract” between laboratory, system developer/maintainer, and user (for ATDs scored 9.5 & up)
- Specifies:
 - What will be demonstrated
 - How it will be demonstrated
 - When it will be demonstrated
- Assures up-front, documented planning by all stakeholders to improve the probability that a demonstrated technology will transition out of the lab to the customer

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TECHNOLOGY SUPERIORITY PROCESS



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DEFINITIONS

- **Technology Transition**

- The movement of technologies from Air Force laboratories to customers who develop and incorporate those technologies into weapon systems

- **Technology Transfer**

- The movement of technologies from Air Force laboratories to non-federal entities (private industry, universities, and state/local governments)

Technology = People, Facilities, Processes, Products

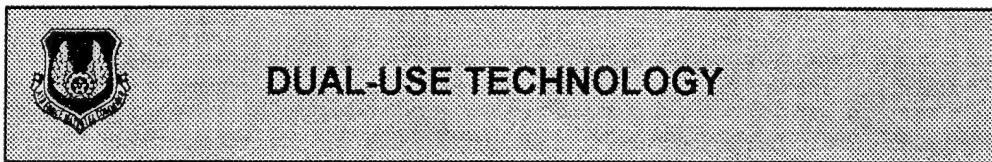
SAT Overview 9/18/96



DUAL-USE TECHNOLOGY

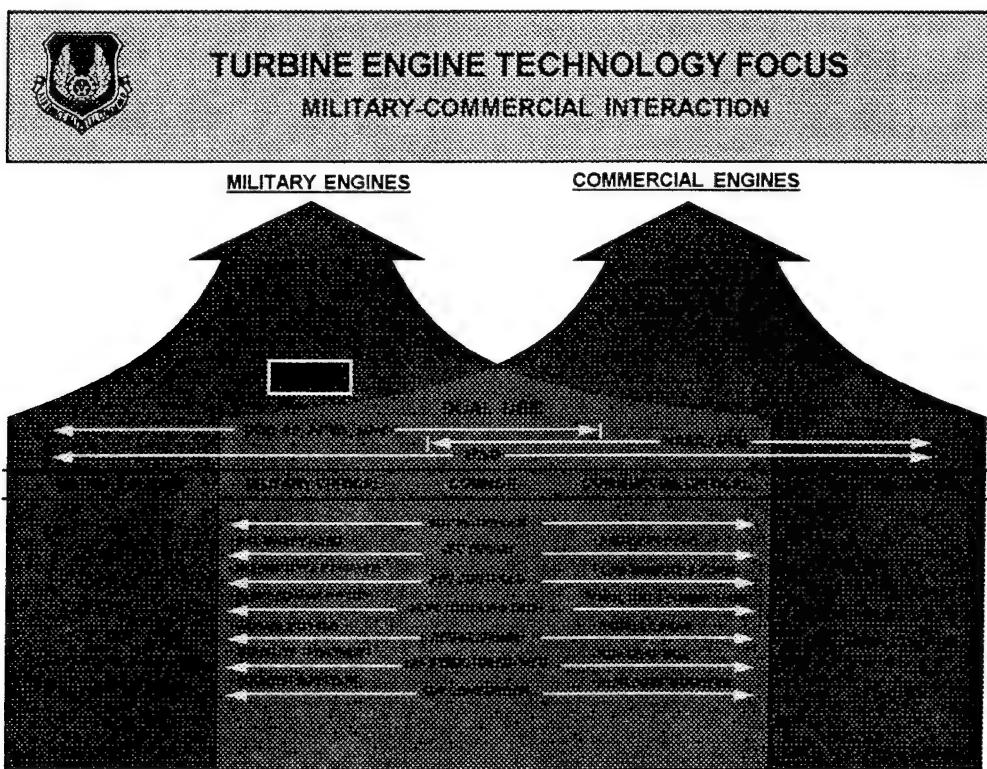
**Technology pursued by the Air Force which
meets military needs, and which also has
potential non-defense application**

SAT Overview 9/18/96



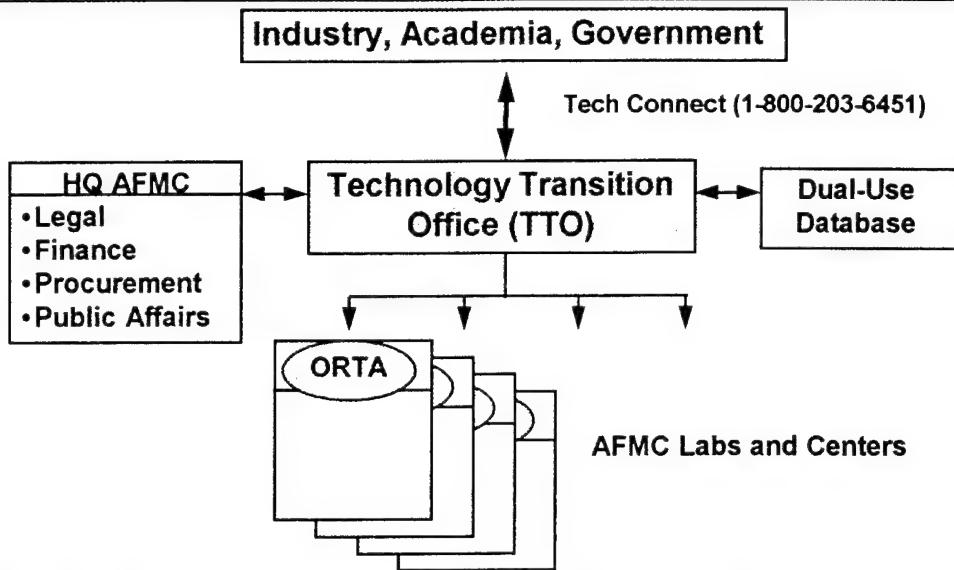
BOTTOM LINE: AF SUPPORTS DUAL-USE DEVELOPMENT, BUT DOES
NOT FUND COMMERCIALIZATION

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TECHNOLOGY TRANSFER PROCESS



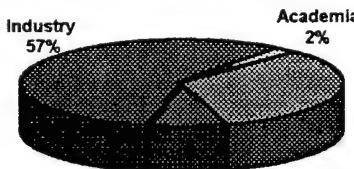
* ORTA: Office of Research and Technology Applications

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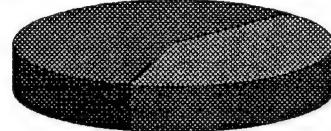


TECH CONNECT DEMOGRAPHICS

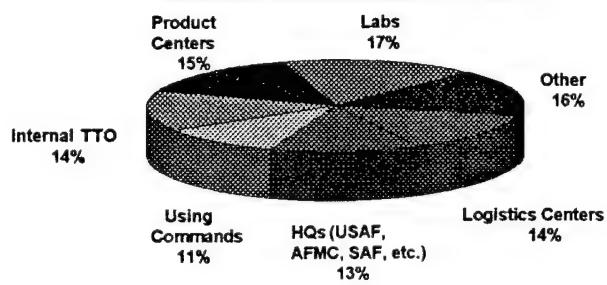
TOTAL CUSTOMER BASE - DEMOGRAPHICS



TOTAL CUSTOMER BASE - TRANSFER



AF CUSTOMER BASE - DEMOGRAPHICS



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DUAL-USE TECHNOLOGY/ TECHNOLOGY TRANSFER

- Provides funding leverage with industry
 - Industry shares the investment
 - Serves military and commercial needs
- Improves production capability
 - Industry has large production facilities
 - Takes advantage of economies of scale
- Recent examples
 - Intelligent Tutor System
 - Transmit/Receive Modules
 - Intelligent Dipstick

S&T Overview 9/18/96



OVERVIEW

- AF S&T Organization and Resources
- Air Force Modernization Planning Process
- ➡ • Investment Strategy
- Summary

S&T Overview 9/18/96



FY98 POM STRATEGY

NEAR

MID

FAR

- Support DDR&E's Defense Technology Objectives
- Maintain proper balance among 6.1, 6.2, and 6.3
- Maintain proper balance across all 12 technology areas
- Fund each MAJCOM's top ten ATDs
- Increase investment in:
 - Aging Aircraft Structures
 - Space
 - Information Dominance
 - Training the Warfighter
- Focus on selected topics:
 - High cycle fatigue in jet engines
 - Large aircraft IRCM
 - Affordability Tools & Training
- Invest in New World Vistas technologies

SAT Overview 3/18/96



COMPARISON OF FY96 & FY98 S&T BUDGETS (FY96 \$)

TECHNOLOGY AREA	Percent Change FY96 PB to FY98 POM	Change
Advanced Weapons	-4.5%	↔
Aerospace Propulsion	-5.1%	↔
Air Vehicles	-2.1%	↔
Avionics	-3.5%	↔
C3I	-4.2%	↔
Civil & Environ. Engineering	-24.6%	↓
Conventional Weapons	-11.6%	↓
Geophysics	-23.1%	↓
Human Systems	-4.2%	↔
Materials	-2.3%	↔
Basic Research	-0.1%	↔
Space & Missiles	+11.9%	▲

* Up/Down arrow represents budget shift of > 10%

SAT Overview 3/18/96



"REVOLUTIONARY PLANNING" FRAMEWORK

- Air Force Long-Range Planning Initiative
 - Led by AF/LR (MGen John Gordon)
 - The "umbrella" for all LRP activities
- New World Vistas (SAB)
 - Concepts and technologies for 21st century Air Force
- AF 2025 (AU)
 - "Alternative futures" and associated concepts/technologies
- "Shaping the Role of Air Power: A Paradigm for Meeting the Needs of Future Joint Operations" (Rand Corp)
 - AF capabilities for range of missions

S&T Overview 9/18/96



AF SCIENTIFIC ADVISORY BOARD'S NEW WORLD VISTAS

- Sponsors: SecAF and CSAF
- Purpose: To identify new ideas and technologies that will guarantee the air and space superiority of the US in the 21st century
- Approach:
 - 6 technology panels
 - 6 application panels
 - Intense interplay
- Products
 - Summary Report (15 Dec 95)
 - One technical volume per panel
 - 15 volumes, 2000+ pages

S&T Overview 9/18/96



OVERVIEW

- AF S&T Organization and Resources
 - Air Force Modernization Planning Process
 - Investment Strategy
- ➡ • Summary

S&T Overview 9/18/96



SUMMARY

- AF Modernization Planning Process is shaping S&T Investment
- Mechanism is linkage of deficiencies to technology projects
- Revolutionary planning products will further refine S&T investment
- AF S&T program goals:
 - Balance in investment
 - Responsiveness to user needs
 - Protection of future options

S&T Overview 9/18/96

FY96-97 IR&D ACTION PLAN



05 Sep 96



FOR MORE INFORMATION

FOR MORE INFORMATION ON AIR FORCE IR&D
EFFORTS - PLEASE CONTACT

HQ AFMC/STX
MAJ LOUIS SCACCA
513-257-9567
DSN: 787-9567



IR&D INTRODUCTION

WITH THE MODEST INVESTMENT WE ARE MAKING, WE NOW HAVE THE OPPORTUNITY AND ABILITY TO:

1. USE INDUSTRY'S IR&D EFFORTS TO:

Solve many existing Air Force technical requirements saving the Air Force hundreds of millions of dollars each year .. save money

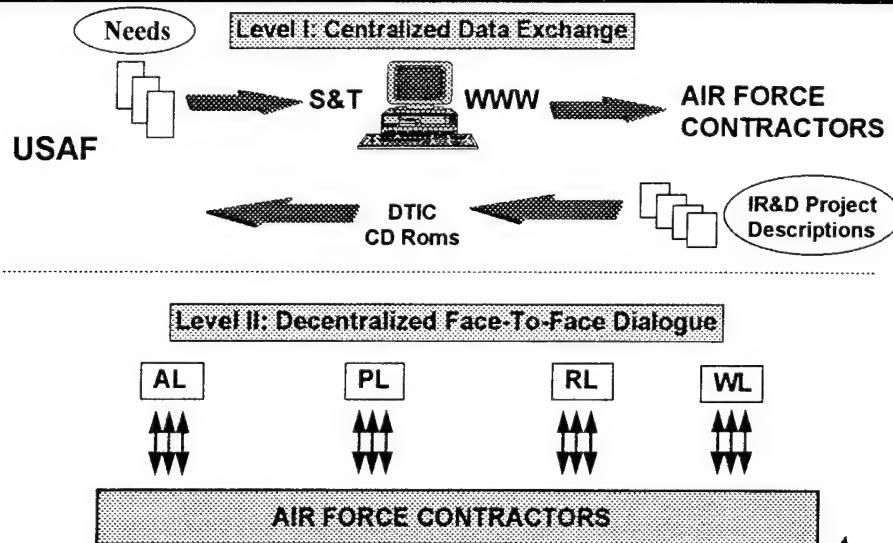
Accelerate integrating state-of-the-art technology into current and future Air Force systems .. save time

2. ANNUALLY INFLUENCE BILLIONS OF DOLLARS OF INDUSTRY'S R&D RESEARCH TO SOLVE FUTURE AIR FORCE REQUIREMENTS .. plan our future with industry

3



AF IR&D PROCESS OVERVIEW





CD-ROM ACTIVITIES

- Match AF requirements to industry research
 - Acquired Non-disclosure agreements with industry
 - Cut specialized FY95 & FY96 CD-ROMs
 - Match AF reqmnt's to industry research (call industry & gov't POCs)
- Develop report generator for CD-ROM

5



S&T WORLD WIDE WEB ACTIVITIES

- Implement Distribution A S&T WWW server
- Implement Controlled S&T WWW server
 - Acquired NetScape WWW secure server
 - Initiated with DTIC a WWW user ID assignment procedure
 - Send software, user ID & password to WWW users
- Advertise WWW site in CBD
- Collection effort to obtain top 9 industry requested data items
- Continuously add to and modify WWW site
- Support STINFO database

6



IR&D SURVEY TO INDUSTRY

- Information Important to Industry -

<u>INFORMATION REQUESTED</u>	<u>STATUS</u>
Technology Road Maps	On WWW
Technical Area Plans	On WWW
Mission Need Statement Summaries	On WWW
Point of Contact (Technical, System, Mission)	On WWW
Technology Report Synopsis of past AF R&D	Projected - Nov
Research & Development Descriptive Summaries	On WWW
Operational Requirement Summaries	On WWW
Current Laboratory Research Efforts	Projected - Nov
IR&D Focal Points	On WWW
Procurement Forecasts - Long Range	TBD
AF Revolutionary S&T Planning	Working
RFPs/RFIs	On WWW
Developmental Plans	On WWW
S&T Overview Process	Working

7



S&T INFORMATION

- Controlled Web Site -

Major AF Points of Contact

- Technical POCs from laboratories
- System POCs from product centers
- AF Laboratory IR&D Managers
- Technology Thrust Managers
- Logistic POCs from logistic centers
- Test POCs from test centers
- Technical Area Plan Managers

Air Force Technology Area Plans

Air Force Technology Roadmaps

Air Force Mission Need Statement Summaries

Industry's Company Center R&D Managers

Research & Development Descriptive Summaries

Air Force Revolutionary S&T Planning

Air Force IR&D Guidelines

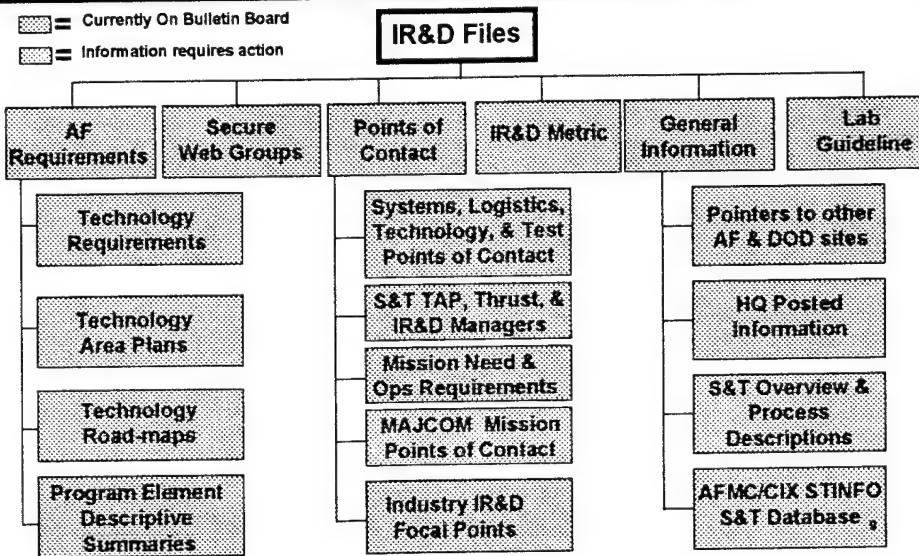
General Information

Pointers to other important R&D web sites

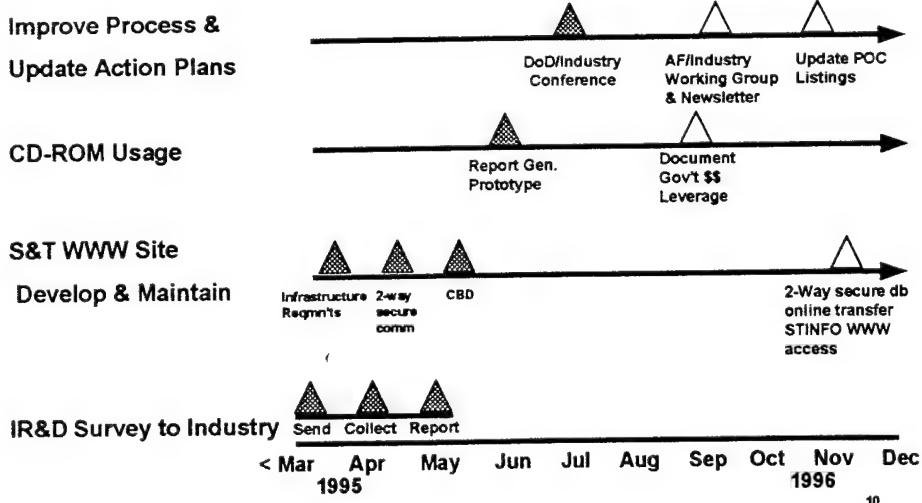
8



INFORMATION FOR INDUSTRY - S&T WORLD WIDE WEB -



FUTURE PLANNED ACTIVITIES

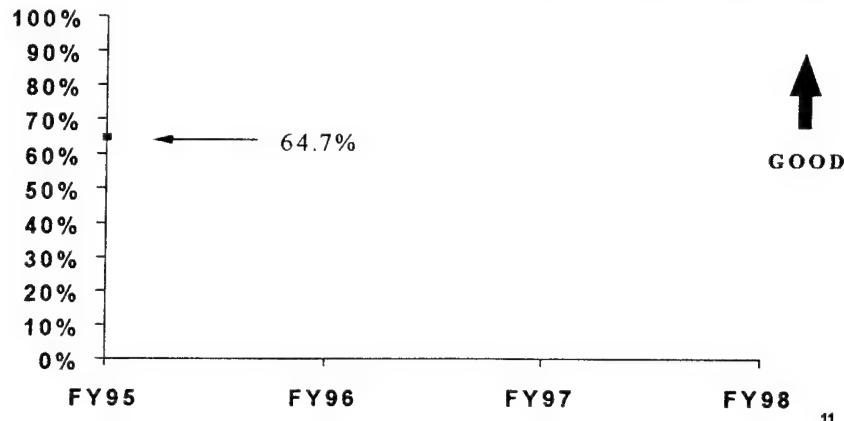




IR&D METRICS

AF Infrastructure Requirements As Of: 31 Jul 96

IR & D METRICS PERCENTAGE OF AIR FORCE INFRASTRUCTURE REQUIREMENTS MATCHED TO CURRENT IR & D EFFORTS



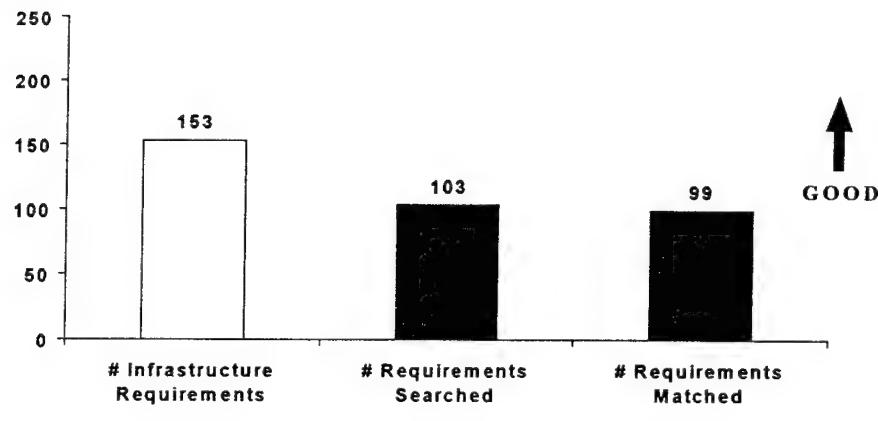
11



IR&D METRICS

AF Infrastructure Requirements As Of: 31 Jul 96

AF INFRASTRUCTURE REQUIREMENT SEARCH STATUS



\$523 M 12

As Of: 31 Jul 96



IR&D CD-ROM

- Search Procedure -

- **Using FY95 AF Infrastructure Needs - High Priority First**
 - Contact need submitter to verify need status
 - Read and understand need to identify search words
 - Use WPL to search industry's IR&D efforts listed on the DTIC CD-ROM database
 - Review all "Hits" for MOST applicable efforts
 - Call industry project principle investigator or company focal point, identifying AF need, need submitter, location, lab point of contact, and associated phone numbers
 - Call AF need submitter and lab point of contact identifying industry projects, industry points of contact, and associated phone numbers
 - Record results
- **Follow Same Procedure with Medium & Low Priority Needs**

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IR&D CD-ROM

- Search Summary Examples -

Infrastructure Need, Need Submitter Org, # projects, FY94+FY95 funding

1. High capacity solid state recorders: 46 TW, 3 proj, 3.7 M
2. Med pressure water cleaning & stripping system for C-130 Prop: WRALC, 3 proj, 1.2 M
3. Telerobotic surface finishing workcell: SAALC, 2 proj, 4.1 M
4. Ability-inspect for corrosion under existing paint: OCALC, 1 proj, .22 M
5. Low observable radar cross section: OCALC, 4 proj, 0.86 M
6. Low observable IR maintenance/surveillance test: (no matches)
7. New tech for paint application systems: OOALC, 1 proj, 0.43 M
8. Intel/reliable image scanning: OOALC, 3 proj, 2.1 M
9. Generic engine test system: SAALC, 2 proj, 0.72 M
10. Neural network for eddy current: SAALC, 3 proj, 0.94 M

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IR&D CD-ROM

- Search Summary Examples -

Infrastructure Need, Need Submitter Org, # projects, FY94+FY95 funding

- 11. Improve low frequency eddy current inspection system:**
WRALC, 3 proj, 2.0 M
- 12. Durability patch:** WRALC, 3 proj, 0.56 M
- 13. Multi-spectral IR scene projector:** 46 TW, 3 proj, 1.58 M
- 14. Anechoic Absorber Material:** (no matches)
- 15. EO/IR high fidelity generator for installed systems test:**
412 TW, 6 proj, 11.8 M
- 16. Detection of hidden corrosion:** SAALC, 5 proj, 3.1 M
- 17. Fluorescent penetration inspection:** (no matches)
- 18. ASC Acquisition/Technical information network:** ASC, 8 proj, 3.0 M
- 19. On-aircraft-bonding surface preparation:** WRALC, 8 proj, 6.1 M

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IR&D CD-ROM

- Search Summary Examples -

Infrastructure Need, Need Submitter Org, # projects, FY94+FY95 funding

- 20. Optimization of advanced composite repairs of cracked metallic structures:** WRALC, 7 proj, 2.4 M
- 21. Corrosion characteristics of advanced structural materials:**
WRALC, 5 proj, 8.0 M
- 22. Advanced ergonomic water technology paint stripping:**
WRALC, 4 proj, 1.9 M
- 23. Computer aided ultrasonic crack detection/tracking system:**
WRALC, 3 proj, 1.3 M
- 24. Small crack coupon testing for cracks less than 0.20 inches long:**
WRALC, 9 proj, 5.1 M
- 25. Predictive corrosion modeling:** WRALC, 3 proj, 2.1 M

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IR&D SUMMARY

- We are continuously working with industry to improve the Air Force's IR&D process
- CD-ROM:
 - Our effort to match IR&D efforts to Air Force requirements has the potential to save the Air Force hundreds of millions of dollars annually and to accelerate integrating state-of-the-art technology into current and future Air Force systems
 - We are developing a report generator to make using the IR&D database easier for management
- S&T BBS: We are leading DOD in the effort to provide industry with S&T planning documents
 - Effort will help industry target their IR&D funds to solve current and future Air Force requirements
 - Effort will promote industry/government cooperation

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IR&D CD-ROM REPORT GENERATOR

What is it ?

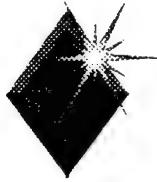
- Method for IR&D searcher to quickly find and understand industry projects of interest
- Software package loaded on CD-ROM

Why is it needed ?

- It's very difficult for the searcher to focus on the right projects without "help" -- thousands of projects to choose from

Bottom lines:

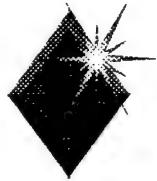
- The Report Generator is critical to our effort which uses industry's IR&D to solve existing and future Air Force needs
- Your IR&D reports are needed and will be used by the right people



STINFO R&D
INFORMATION IN THE
AIR FORCE

DoD/INDUSTRY R&D CONFERENCE
11 JULY 1996

MARY GRATHWOHL
HQ AFMC/SCX
(513) 257-5284



Where is the R&D
Information?

- u STINFO Offices
- u AF Technical Libraries
- u AFIFIO at Wright Lab
- u Information Analysis Centers
- u Air Force S&T Web
- u STINT



STINFO

Offices

- u At each AFMC location
- u Interface with Export Control, FOIA, Security, PA, Data Management, Computer/Communications, Technology Transfer, Legal and each Project Officer
- u Technical Reports



AF

Technical

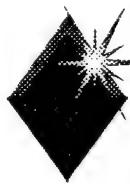
Libraries

- u Wright Lab
- u Phillips Lab
- u Armstrong Lab
- u Rome Lab
- u Other locations
 - Test Center, Edwards AFB; SA-ALC, etc.



**Air Force Information for
Industry Office**

- „ Advises, maintains and releases USAF planning, requirements, budget, acquisitions, and operational information
- „ Research & Development Descriptive Summaries
- „ Program Management Directives
- „ Mission Need Statements
- „ Organizational Requirements Documents
- „ Technology Area Plans



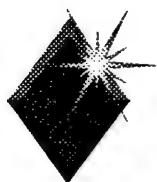
**Air Force Information for
Industry Office**

- „ Assists in certification/registration of potential contractors for access to STINFO
 - „ AF Potential Contractor Program
 - „ Defense Technical Information Center Registration
 - „ Military Critical Technical Data Certification



Companies Using AFIFIO Services Include:

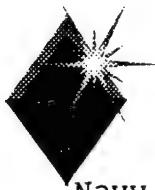
AIL Systems, Allison, B.F. Goodrich,
Chrysler, Cubic Defense Systems, Ball,
Battelle, Computer Sciences, Lockheed
Martin, McDonnell Douglas, GEC Marconi,
GTE, I-NET, Litton, M/A-Con, Northrop
Grumman, Rockwell International, United
Technologies



28 Information Analysis Centers in DoD

Army

- „ Chemical Warfare/Chemical and Biological Defense (CBTAC)
- „ Coastal Engineering (CETAC)
- „ Cold Regions Science and Technology (CRSTAC)
- „ Concrete Technology (CTTAC)
- „ Guidance and Control (GACTAC)
- „ Hydraulic Engineering (HETAC)
- „ Airfields, Pavements and Off-Road Mobility (APOMIAC)
- „ Plastics Technical (PLASTEC)
- „ Soil Mechanics (SMIAC)



28 Information

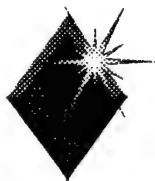
Analysis Centers in DoD

Navy

- „ Chemical Propulsion (CPIA)
- „ Shock and Vibration (SAVIAC)

Air Force

- „ Supportability Investment Decision Analysis (SIDAC)
- „ Aerospace Structures (ASIAC)
- „ Crew Systems Ergonomics (CSERIAC)
- „ Data and Analysis Center for Software (DACS)
- „ Environmental Quality (EQIAC)
- „ Reliability Analysis (RAC)
- „ Survivability/Vulnerability (SURVIAC)

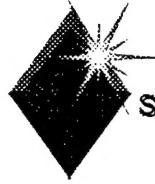


28 Information

Analysis Centers in DoD

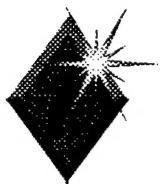
OSD

- „ Ceramics (CIAC)
- „ DoD Nuclear (DASTAC)
- „ High Temperature Materials (HTMIAC)
- „ Infrared (RIA)
- „ Manufacturing Technology (MTIAC)
- „ Metals (MIAC)
- „ Metal Matrix Composites (MMCIAC)
- „ Nondestructive Testing (NTIAC)
- „ Space Defense Initiatives Technical Information Center (SDIDTIC)
- „ Defense Modeling, Simulation and Tactical Technology (DMSTTAC)



SIDAC Typical Functions

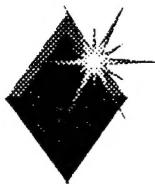
- „ Studies and Analysis
 - Quick reaction (2 weeks-2 years)
 - „ 10-12 weeks to delivery order award
- „ Computer Modeling
 - PC-based and mainframe models
 - Information on hundreds of others



SIDAC Typical Functions

(cont'd)

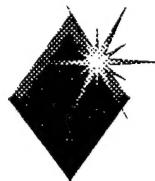
- „ Information Base
 - Abstracts and Indices
 - Dial-up queries
 - External database connections
- „ Handbooks, Data Books and SOARS
 - One each per year
 - „ SOAR - Methodology for Comparing Support Models



SIDAC Typical Functions

(cont'd)

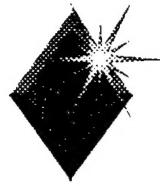
- „ Seminars, Training and Symposia
 - SIDAC Supportability Modeling Conference
 - CASA Workshop
- „ Information Materials
 - Current Awareness Bulletin (Monthly)
 - Quarterly Newsletters
 - Brochures (general information, technical information, task leader)
 - Briefings



SIDAC Typical Functions

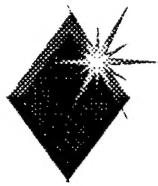
(cont'd)

- „ Critical Reviews and Technology Assessments
 - As required
 - Assessments available:
 - „ Quantitative Methods for Supportability Analysis
 - „ Language of Logistics
 - „ Review of AF Supportability Data Reporting System



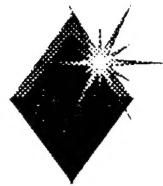
Air Force S&T Web

- u <http://www.afmc.wpafb.af.mil/STBBS>
- u IR&D topics
- u Lab focal points
- u And more



STINT

- u For Work Units Information Summaries
- u AFMC - AF Wide Use
- u 2 years in development
- u 1996, 4th Quarter Initial Fielding
- u Continued development
- u 1997? Industry will be able to use STINT via ST Web



AFMC STINFO Office

Ms. Pat McWilliams

HQ AFMC/SCXR

(513) 257-1904